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FOR THE YEAR

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UNDER AUTHORITY OF CHAPTER IV. OF THE PUBLIC STATUTES.

Vol. 1.—Nos. 1 to 4.

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1882.

PUBLIC DOCUMENTS

FOR THE YEAR

1881.

Vol. I.

No. 1. Registration Report of Births, Marriages, and Deaths.
2. Report of Secretary of the Board of Education.
3. Report of State Librarian.
4. Report of Secretary of the Board of Agriculture.

Vol. II.

No. 5. Report of Treasurer of the Commonwealth.
6. Report of Auditor of the Commonwealth.
7. Report of Adjutant General of the Commonwealth.
8. Report of Commissioners of Savings Banks, and Accounts of County Officers.

Vol. III.

No. 9. Insurance Commissioner's Report (Fire, Life, and Accident Companies and Mutual Benefit Associations).
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No. 14. Report of Railroad Commissioners and Returns of Railroad Corporations.
15. Report of Bureau of Statistics of Labor (and Supplementary Report on United States Census of Massachusetts).

Vol. V.

No. 16. Report of Tax Commissioner.
17. Report of State Board of Health, Lunacy, and Charity.
18. Report of State Primary and Reform Schools.
19. Aggregate of Polls, Property, and Taxes.
20. Report of State Lunatic Hospital at Danvers.
21. Report of State Lunatic Hospital at Northampton.
22. Report of State Lunatic Hospital at Taunton.
23. Report of State Lunatic Hospital, etc., at Worcester.
24. Report of State Workhouse at Bridgewater.
25. Report of Commissioners of Inland Fisheries.
26. Report of State Almshouse at Tewksbury.
27. Report of Perkins Institution for the Blind.
28. Report of School for Idiotic Youth.

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Report of the Secretary of the Board of Education 2

Report of Librarian of the State Library 3

Report of Secretary of the Board of Agriculture 4

PUBLIC DOCUMENT. No. 1.

FORTIETH REPORT

TO THE

LEGISLATURE OF MASSACHUSETTS

RELATING TO THE

Registry and Return

OF

BIRTHS, MARRIAGES, AND DEATHS

IN THE

COMMONWEALTH,

FOR THE YEAR ENDING DECEMBER 31, 1881.

PREPARED UNDER DIRECTION OF THE
SECRETARY OF THE COMMONWEALTH.

BOSTON:
WRIGHT & POTTER PRINTING CO., STATE PRINTERS, 18 POST OFFICE SQUARE.
1882.

Commonwealth of Massachusetts.

SECRETARY'S DEPARTMENT, BOSTON, OCT. 16, 1882.

To the Honorable Senate and House of Representatives.

IN conformity with the requirements of the General Statutes, I have the honor to submit herewith the Fortieth Annual Registration Report, relating to the Births, Marriages, and Deaths occurring in the Commonwealth of Massachusetts during the year ending Dec. 31, 1881, registered in and returned from the several cities and towns according to law.

The present Report, edited by Dr. CHARLES F. FOLSOM of Boston, formerly Secretary of the Massachusetts State Board of Health, and member of the National Board of Health, contains two new tables; one exhibiting the Sex and Age of all deaths occurring from Typhoid Fever in each town of the State, for each of the Ten Years 1871–1880 inclusive; and the other comprising an Abstract of the Vital Statistics of the several towns for a like period of Ten Years.

Respectfully submitted.

HENRY B. PEIRCE,
Secretary of the Commonwealth.

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FORTIETH REGISTRATION REPORT.

(1881.)

The average annual rate of increase in the population of Massachusetts from 1870 to 1875 was 2·538 per cent. From 1875 to 1880, it was 1·55 per cent., estimated to have been unevenly distributed over the five years as follows: 0·000; 0·324; 0·599; 2·999; 3·835.

In the three census years 1870, 1875 and 1880 the average of the ratios of the population was 3·98 (4·08; 3·94; 3·93) to the assessed polls. Calculating from the assessed polls of 1881 (469,207), the population for that year, upon the same basis, would be 1,867,444.

In the year 1881, there were recorded 45,220 births, 16,768 marriages and 36,458 deaths; or 1,003 more births, 1,230 more marriages, and 1,166 more deaths than in the previous year.

The excess of living births over deaths was 8,762, showing a natural increase of births over deaths amounting to 163 less than in 1880.

The approximate rates for the year are:

Births, . . .	24·21	to 1,000 of estimated population.
Marriages, . .	8·98	" "
Deaths, . . .	19·52	" "
Excess of births, .	4·69	" "

This would indicate one child born alive to every 41 persons, one married in each 56, and one death in every 51 living.

The variations in the rates for a period of years are shown in *Table 1.*

TABLE 1.—*Births, Marriages, and Deaths, with the Population and Rates, 1850–1880.*

YEARS.	Population.	Births.	Marriages.	Deaths.	Excess of Births over Deaths.	Births to 1,000 Persons.	Persons Married to 1,000.	Deaths to 1,000 Persons.	Rate of Increase to 1,000 Persons.	Ratio of Births to Marriages.
1850, .	**994,514**	**27,664**	**10,845**	**16,606**	**11,058**	**27·82**	**20·80**	**16·70**	**11·12**	**8·99**
1851, .	1,002,003	28,681	11,966	18,934	9,747	28·62	23 88	18·90	9·72	2.77
1852, .	1,027,508	29,802	11,578	18,482	11,320	29·00	22·54	17·99	11·01	2·50
1853, .	1,075,007	30,920	12,828	20,301	10,619	28 76	23 86	18 88	9·88	2·67
1854, .	1,103,351	31,997	13,683	21,414	10,583	29·00	24 80	19·41	9·59	2 49
1855, .	**1,182,364**	**82,845**	**12,329**	**20,798**	**12,047**	**29·01**	**21·77**	**18·87**	**10·64**	**2·40**
1856, .	1,151,455	34,445	12,265	20,734	13,711	29·91	21·30	18·01	11·90	2·79
1857, .	1,170,862	35,320	11,739	21,280	14,040	30·17	20·05	18·17	12·00	2·88
1858, .	1,190,592	34,491	10,527	20,776	13,715	28·97	17·68	17·45	11·52	2·94
1859, .	1,210,656	35,422	11,475	20,976	14,446	29·26	18·96	17·33	11·93	3 36
1860, .	**1,281,067**	**86,051**	**12,404**	**28,068**	**18,988**	**29·28**	**20·15**	**18·74**	**10·54**	**8·14**
1861, .	1,238,110	35,445	10,972	24,085	11,360	28·63	17·72	19 46	9 17	2·86
1862, .	1,245,310	32,275	11,014	22,974	9,301·	25·92	17·69	18·45	7·47	2·94
1863, .	1,252,500	30,314	10,873	27,751	2,563	24·20	17·36	22 16	2 04	2·75
1864, .	1 259,710	30,449	12,513	28,723	1,726	24 17	19·87	22·80	1·37	2·80
1865, .	**1,267,081**	**80,249**	**18,051**	**26,152**	**4,097**	**28·87**	**20·60**	**20·64**	**8·28**	**2·42**
1866, .	1,302,989	34,085	14,428	23,637	10,448	26·16	22·15	18·14	8·02	2·61
1867, .	1,339,968	35,062	14,451	22,772	12,290	26·17	21·57	16 99	9·18	2·43
1868, .	1,377,996	36,193	13,856	25,603	10,590	26·26	20·11	18·58	7·68	2·50
1869, .	1,417,103	36,141	14,826	26,054	10,087	25·50	20·92	18·38	7·12	2 61
1870, .	**1,457,851**	**88,259**	**14,721**	**27,829**	**10,980**	**26·25**	**20·20**	**18·75**	**7·50**	**2·58**
1871, .	1,494,338	39,791	15,746	27,943	11,848	26·63	21·07	18·70	7·93	2·70
1872, .	1,532,264	43,235	16,142	35,019	8,216	28 22	21 07	22 85	5 37	2·75
1873, .	1,571,152	44,481	16,437	33,912	10,569	28·31	20·92	21·58	6·73	2·76
1874, .	1,611,028	45,631	15,564	31,887	13,744	28·32	19 32	19·79	8·53	2·78
1875, .	**1,651,912**	**48,996**	**13,668**	**84,978**	**9,018**	**26·68**	**16·54**	**21·17**	**5·46**	**2·88**
1876, .	1,651,912	42,149	12,749	33,186	8,963	25·51	15·43	20·09	5·42	3·08
1877, .	1,657,265	41,850	12,758	31,342	10,508	25·25	15·40	18 91	6·34	3·28
1878, .	1,667,200	41,238	12,893	31,303	9,935	24·73	15·47	18·78	5·95	3·23
1879, .	1,717,200	40,295	13,802	31,801	8,494	23 46	16·07	18·52	4·95	3·13
1880, .	**1,788,085**	**44,217**	**15,588**	**85,292**	**8,925**	**24·80**	**17·42**	**19·79**	**5·01**	**8·20**

In periods of five years, from census to census, our rates indicate a somewhat diminishing birth-rate, sufficient to reduce considerably the average natural rate of increase of the population in the twenty-five years, and to place it far behind those of Germany, Holland, Sweden, Denmark and Ireland, somewhat behind those of Switzerland, Italy and Spain, but above those of France and Hungary.

TABLE 2. — *Rates of Births, Persons Married and Deaths in Various Countries, 1860–80.*

COUNTRIES.	AVERAGE 1860-1879.				1880.			
	Birth Rate.	Death Rate.	Excess of Birth Rate over Death Rate.	Marr[illegible] Rate.	Birth Rate.	Death Rate.	Excess of Birth Rate over Death Rate	Marriage Rate.
Massachusetts, . .	26·2	19·7	6·5	18·9	24·8	19·8	5·0	17·4
England and Wales, .	35·4	22·0	13·4	16·6	34·2	20·5	13·7	14·9
Denmark, . . .	31·2	19·7	11·5	15·4	31·8	20·4	11·4	15·2
Sweden, ...	31·2	19·2	12·0	13·6	29·4	18·1	11·3	12·6
Austria, ...	39·9	30·8	9·1	17·2	37·3	29·6	7·7	15·1
Prussia, ...	38·6	26·5	12·1	17·2	37·9	25·5	12·4	15·4
Netherlands, . . .	35·4	24·6	10·8	16·2	35·6	23·6	12·0	15·0
France,*	26·0	23·6	2·4	15·9	–	–	–	–
Hungary,†	42·6	38·9	3·7	20·8	42·9	38·6	4·3	18·2
Switzerland,‡	31·6	24·0	7·6	15·3	29·6	21·9	7·7	13·6
Italy,§	37·2	29·9	7·3	15·2	33·6	30·5	3·1	13·8
Spain,‖ . . .	37·2	29·7	7·5	15·1	–	–	–	–
German Empire,¶ . .	39·8	27·0	12·8	17·7	37·7	26·1	11·6	15·0

* For 19 years. † 13 years. ‡ 9 years. § 10 years. ‖ 17 years. ¶ 8 years.

TABLE 3. — *Showing Rates for Periods ending with Census Years 1855–1880.*

	Marriages to 1,000 Persons.	Births to 1,000 Persons.	Deaths to 1,000 Persons.	Excess of Birth Rate over Death Rate.
5 years ending 1855, . .	11·7	28·8	18·7	10·1
5 " " 1860, . .	9·8	29·5	17·9	11·6
5 " " 1865, . .	9·3	25·4	20·7	4·7*
5 " " 1870, . .	10·5	26·1	18·2	7·9
5 " " 1875, . .	9·9	27·6	20·8	6·8
5 " " 1880, . .	8·0	24·8	19·2	5·6
30 " " 1880, . .	9·86	27·03	19·25	7·78

* 8·3, excluding the three years most influenced by the war.

TABLE 4.—*Births, Marriages, and Deaths. General Abstract for Ten Years, 1871–80.*

	BIRTHS.				MARRIAGES.	DEATHS.						Birth Rate.	Death Rate.
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.		
		Males.	Females.	Unk.			Males.	Females.	Unk.				
MASSACHUSETTS, . .	426,884	219,212	207,337	335	145,292	326,663	162,435	163,926	302	323,733	30·25	26·19	20·02
Barnstable, ...	6,197	3,232	2,964	1	2,752	5,745	2,926	2,788	31	5,7[illegible]5	42·46	19·25	17·85
Berkshire, ...	16,156	8,240	7,892	18	4,771	11,016	5,470	5,519	27	10,945	34·87	23·85	16·27
Bristol, ...	31,922	16,415	15,480	27	11,578	25,993	12,976	12,993	24	25,828	30·00	25·26	20·57
Dukes and Nantucket, .	1,163	607	549	7	641	1,792	908	879	5	1,767	51·96	15·45	23·82
Essex, ...	55,356	28,350	26,985	21	20,549	44,915	22,381	22,493	41	43,796	30·66	24·90	20·20
Franklin, ...	6,671	3,459	3,197	15	2,667	5,623	2,800	2,805	18	5,586	41·24	19·69	17·16
Hampden, ...	24,399	12,406	11,969	24	8,730	18,312	9,024	9,268	20	18,229	27·43	26·33	19·76
Hampshire, ...	10,016	5,152	4,859	5	3,537	8,268	3,990	4,271	7	8,227	36·40	22·19	18·99
Middlesex, ...	75,625	39,027	36,495	103	25,608	54,770	26,632	28,094	44	53,217	29·29	26·28	19·03
Norfolk, ...	21,891	11,258	10,616	17	6,609	15,204	7,576	7,621	7	15,159	34·54	24·32	16·89
Plymouth, ...	14,075	7,347	6,711	17	5,548	11,567	5,683	5,856	28	11,503	40·44	20·30	16·83
Suffolk, ...	107,873	54,941	52,928	4	35,153	81,794	41,074	40,708	12	81,710	25·11	30·98	23·85
Worcester, ...	54,584	28,289	26,231	76	17,149	38,174	18,953	19,184	37	37,962	32·39	26·05	18·23

TABLE 4. — *Births, Marriages, and Deaths* — Continued.

	BIRTHS.				MARRIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
BARNSTABLE COUNTY, . .	6,197	3,232	2,964	1	2,752	5,745	2,926	2,788	31	5,705	45·73
Barnstable, ...	612	293	319	-	379	725	355	367	3	722	48·11
Brewster, ...	266	135	131	-	98	206	101	104	1	206	43·38
Chatham, ...	428	217	211	-	209	442	225	217	-	440	44·65
Dennis, ...	684	367	317	-	324	623	324	299	-	622	40·17
Eastham, ...	99	57	42	-	40	117	57	60	-	115	55·80
Falmouth, ...	365	189	176	-	162	464	234	229	1	457	51·32
Harwich, ...	701	359	342	-	322	491	251	223	17	491	36·47
Mashpee, ...	94	50	44	-	29	79	38	41	-	79	32·58
Orleans, ...	213	101	112	-	125	312	155	157	-	309	46·80
Provincetown, ...	1,080	567	512	1	427	768	415	351	2	668	34·96
Sandwich, ...	664	348	316	-	249	550	285	264	1	544	44·63
Truro, ...	237	127	110	-	77	206	109	97	-	204	45·23
Wellfleet, ...	376	206	170	-	176	338	178	155	5	337	43·78
Yarmouth, ...	387	226	161	-	149	424	199	224	1	422	39·87
BERKSHIRE COUNTY, . .	16,156	8,246	7,892	18	4,771	11,016	5,470	5,519	27	10,945	34·87
Adams, ...	3,158	1,643	1,514	1	990	2,053	1,050	1,000	3	2,044	25·27
Alford, ...	77	28	49	-	24	73	26	47	-	73	72·34
Becket, ...	207	106	100	1	65	182	81	99	2	179	42·10
Cheshire, ...	352	195	157	-	104	253	132	120	1	253	35·98

TABLE 4. — *Births, Marriages, and Deaths. General Abstract for Ten Years, 1871–80.*

	BIRTHS.				MARRIAGES.	DEATHS.							
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.	Birth Rate.	Death Rate.
		Males.	Females.	Unk.			Males.	Females.	Unk.				
MASSACHUSETTS, . .	426,884	219,212	207,337	335	145,292	326,663	162,435	163,926	302	323,733	30·25	26·19	20·02
Barnstable, ...	6,197	3,232	2,964	1	2,752	5,745	2,926	2,788	31	5,705	42·46	19·25	17·85
Berkshire, ...	16,156	8,240	7,892	18	4,771	11,016	5,470	5,519	27	10,945	34·87	23·85	16·27
Bristol, ...	31,922	16,415	15,480	27	11,578	25,993	12,976	12,993	24	25,828	30·00	25·26	21·57
Dukes and Nantucket, .	1,163	607	549	7	641	1,792	908	879	5	1,767	51·96	15·45	23·82
Essex, ...	55,356	28,350	26,985	21	20,549	44,915	22,381	22,493	41	43,796	30·66	24·90	20·20
Franklin, ...	6,671	3,459	3,197	15	2,667	5,623	2,800	2,805	18	5,586	41·24	19·69	17·16
Hampden, ...	24,399	12,406	11,969	24	8,730	18,312	9,024	9,268	20	18,229	27·43	26·33	19·76
Hampshire, . . .	10,016	5,152	4,859	5	3,537	8,268	3,990	4,271	7	8,227	36·40	22·19	18·99
Middlesex, ...	75,625	39,027	36,495	103	25,608	54,770	26,632	28,094	44	53,217	29·29	26·28	19·03
Norfolk, ...	21,891	11,258	10,616	17	6,609	15,204	7,576	7,621	7	15,159	34·54	24·32	16·89
Plymouth, ...	14,075	7,347	6,711	17	5,548	11,567	5,683	5,856	28	11,503	40·44	20·30	16·83
Suffolk, ...	107,873	54,941	52,928	4	35,153	81,794	41,074	40,708	12	81,710	25·11	30·98	23·85
Worcester, ...	54,584	28,289	26,231	76	17,149	38,174	18,953	19,184	37	37,962	32·39	26·05	18·23

TABLE 4. — *Births, Marriages, and Deaths* — Continued.

	BIRTHS.				MARRIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
BARNSTABLE COUNTY, . . .	6,197	3,232	2,964	1	2,752	5,745	2,926	2,788	31	5,705	45·73
Barnstable, ...	612	293	319	-	379	725	355	367	3	722	48·11
Brewster, ...	266	135	131	-	98	206	101	104	1	206	43·38
Chatham, ...	428	217	211	-	209	442	225	217	-	440	44·65
Dennis, ...	684	367	317	-	324	623	324	299	-	622	40·17
Eastham, ...	99	57	42	-	40	117	57	60	-	115	55·80
Falmouth, ...	365	189	176	-	162	464	234	229	1	457	51·32
Harwich, ...	701	359	342	-	322	491	251	223	17	491	36·47
Mashpee, ...	94	50	44	-	29	79	38	41	-	79	32·58
Orleans, ...	213	101	112	-	125	312	155	157	-	309	46·80
Provincetown, ...	1,080	567	512	1	427	768	415	351	2	668	34·96
Sandwich, ...	664	348	316	-	249	550	285	264	1	544	44·63
Truro, ...	237	127	110	-	77	206	109	97	-	204	45·23
Wellfleet, ...	376	206	170	-	176	338	178	155	5	337	43·78
Yarmouth, ...	387	226	161	-	149	424	199	224	1	422	39·87
BERKSHIRE COUNTY, . . .	16,156	8,246	7,892	18	4,771	11,016	5,470	5,519	27	10,945	34·87
Adams, ...	3,158	1,643	1,514	1	990	2,053	1,050	1,000	3	2,044	25·27
Alford, ...	77	28	49	-	24	73	26	47	-	73	72·34
Becket, ...	207	106	100	1	65	182	81	99	2	179	42·10
Cheshire, ...	352	195	157	-	104	253	132	120	1	253	35·98

Table 4. — *Births, Marriages, and Deaths* — Continued.

	BIRTHS.				MARRIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
Dukes County — Con.											
Gay Head,	47	31	16	-	15	49	29	18	2	46	45·40
Gosnold,	14	5	9	-	7	18	13	5	-	15	42·02
Tisbury,	193	101	90	2	119	266	159	107	-	265	51·03
Essex County,	55,356	28,350	26,985	21	20,549	44,915	22,381	22,493	41	43,796	30·66
Amesbury,	1,230	602	627	1	381	805	388	414	3	799	33·00
Andover,	914	456	458	-	320	841	406	435	-	838	41·42
Beverly,	1,618	831	786	1	563	1,287	622	665	-	1,286	35·83
Boxford,	165	82	83	-	66	141	74	67	-	141	50·81
Bradford,	485	241	244	-	144	387	184	202	1	384	35·40
Danvers,	1,326	673	653	-	478	1,282	664	614	4	1,278	30·86
Essex,	255	124	130	1	121	276	127	149	-	276	47·43
Georgetown,	331	180	151	-	153	339	160	179	-	337	44·35
Gloucester,	5,750	2,927	2,820	3	1,667	4,465	2,780	1,678	7	3,512	24·99
Groveland,	438	206	232	-	128	345	171	163	1	341	35·09
Hamilton,	135	66	69	-	71	127	71	55	1	127	45·38
Haverhill,	3,807	1,940	1,867	-	1,822	2,851	1,374	1,472	5	2,828	29·52
Ipswich,	650	333	317	-	297	727	361	365	1	723	44·36
Lawrence,	9,952	5,126	4,823	3	3,752	7,671	3,691	3,973	7	7,635	21·59
Lynn,	7,678	3,977	3,697	4	3,522	6,509	3,128	3,378	3	6,492	27·87
Lynnfield,	128	62	66	-	47	111	51	60	-	111	46·09
Manchester,	295	163	132	-	114	291	129	162	-	291	41·48

Marblehead,	1,964	1,021	943	–	640	1,570	813	757	–	1,567	31·37
Merrimac,	209	100	109	–	84	172	93	79	–	170	38·92
Methuen,	859	433	426	–	336	660	328	332	–	657	33·60
Middleton,	183	92	91	–	65	168	73	95	–	168	33·44
Nahant,	163	75	88	–	29	80	44	36	–	80	33·42
Newbury,	314	164	149	1	94	228	99	129	–	228	46·76
Newburyport,	3,063	1,584	1,479	–	1,256	2,829	1,371	1,456	2	2,815	38·15
North Andover,	785	413	372	–	188	494	243	249	2	492	33·42
Peabody,	2,548	1,268	1,280	–	555	1,581	754	827	–	1,581	28·35
Rockport,	1,168	597	569	2	414	815	413	400	2	800	32·90
Rowley,	226	122	104	–	98	204	108	96	–	201	47·57
Salem,	6,145	3,131	3,013	1	2,116	5,559	2,631	2,928	–	2,777	31·69
Salisbury,	999	516	483	–	337	746	358	388	–	746	38·70
Saugus,	406	226	176	4	172	365	170	195	–	365	38·16
Swampscott,	457	250	207	–	145	337	175	160	2	325	33·01
Topsfield,	221	118	103	–	98	193	92	101	–	193	49·46
Wenham,	165	75	90	–	63	153	69	84	–	153	48·34
West Newbury,	311	168	143	–	123	306	156	150	–	306	40·54
FRANKLIN COUNTY,	6,671	3,459	3,197	15	2,667	5,623	2,800	2,805	18	5,586	41·24
Ashfield,	168	96	72	–	55	173	82	91	–	173	57·47
Bernardston,	176	88	88	–	92	166	81	84	1	166	47·33
Buckland,	454	215	239	–	115	339	177	162	–	339	32·42
Charlemont,	141	77	64	–	102	180	85	94	1	179	51·57
Colerain,	299	153	146	–	156	250	119	131	–	248	44·55
Conway,	316	173	142	1	122	298	150	148	–	298	41·26
Deerfield,	794	412	376	6	215	599	313	280	6	596	36·85
Erving,	90	57	33	–	40	114	66	48	–	114	32·73
Gill,	65	35	30	–	36	91	46	45	–	91	52·55
Greenfield,	732	374	355	3	374	547	238	307	2	543	40·40
Hawley,	82	44	37	1	38	78	41	35	2	78	48·66
Heath,	105	53	52	–	44	78	31	47	–	78	44·79

TABLE 4. — *Births, Marriages, and Deaths* — Continued.

	BIRTHS.				MARRIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
Dukes County — Con.											
Gay Head, ...	47	31	16	-	15	49	29	18	2	46	45·40
Gosnold, ...	14	5	9	-	7	18	13	5	-	15	42·02
Tisbury, ...	193	101	90	2	119	266	159	107	-	265	51·03
ESSEX COUNTY, ...	55,356	28,350	26,985	21	20,549	44,915	22,381	22,493	41	43,796	30·66
Amesbury, ...	1,230	602	627	1	381	805	388	414	3	799	33·00
Andover, ...	914	456	458	-	320	841	406	435	-	838	41·42
Beverly, ...	1,618	831	786	1	563	1,287	622	665	-	1,286	35·83
Boxford, ...	165	82	83	-	66	141	74	67	-	141	50·81
Bradford, ...	485	241	244	-	144	387	184	202	1	384	35·40
Danvers, ...	1,326	673	653	-	478	1,282	664	614	4	1,278	30 86
Essex, ...	255	124	130	1	121	276	127	149	-	276	47·43
Georgetown, ...	331	180	151	-	153	339	160	179	-	337	44·35
Gloucester, ...	5,750	2,927	2,820	3	1,667	4,465	2,780	1,678	7	3,512	24·99
Groveland, ...	438	206	232	-	128	345	171	163	1	341	35·09
Hamilton, ...	135	66	69	-	71	127	71	55	1	127	45·38
Haverhill, ...	3,807	1,940	1,867	-	1,822	2,851	1,374	1,472	5	2,828	29·52
Ipswich, ...	650	333	317	-	297	727	361	365	1	723	44·36
Lawrence, ...	9,952	5,126	4,823	3	3,752	7,671	3,691	3,973	7	7,635	21·59
Lynn, ...	7,678	3,977	3,697	4	3,522	6,509	3,128	3,378	3	6,492	27·87
Lynnfield, ...	128	62	66	-	47	111	51	60	-	111	46·09
Manchester, ...	295	163	132	-	114	291	129	162	-	291	41·48

Marblehead,	1,964	1,021	943	-	640	1,570	813	757	-	1,567	31·37
Merrimac,	209	100	109	-	84	172	93	79	-	170	38·92
Methuen,	859	433	426	-	336	660	328	332	-	657	33·60
Middleton,	183	92	91	-	65	168	73	95	-	168	33·44
Nahant,	163	75	88	-	29	80	44	36	-	80	38·42
Newbury,	314	164	149	1	94	228	99	129	-	228	46·76
Newburyport,	3,063	1,584	1,479	-	1,256	2,829	1,371	1,456	2	2,815	38·15
North Andover,	785	413	372	-	188	494	243	249	2	492	33·42
Peabody,	2,548	1,268	1,280	-	555	1,581	754	827	-	1,581	28·35
Rockport,	1,168	597	569	2	414	815	413	400	2	800	32·90
Rowley,	226	122	104	-	98	204	108	96	-	201	47·57
Salem,	6,145	3,131	3,013	1	2,116	5,559	2,631	2,928	-	2,777	31·69
Salisbury,	999	516	483	-	337	746	358	388	-	746	38·70
Saugus,	406	226	176	4	172	365	170	195	-	365	38·16
Swampscott,	457	250	207	-	145	337	175	160	2	325	33·01
Topsfield,	221	118	103	-	98	193	92	101	-	193	49·46
Wenham,	165	75	90	-	63	153	69	84	-	153	48·34
West Newbury,	311	168	143	-	123	306	156	150	-	306	40·54
FRANKLIN COUNTY,	6,671	3,459	3,197	15	2,667	5,623	2,800	2,805	18	5,586	41·24
Ashfield,	168	96	72	-	55	173	82	91	-	173	57·47
Bernardston,	176	88	88	-	92	166	81	84	1	166	47·33
Buckland,	454	215	239	-	115	339	177	162	-	339	32·42
Charlemont,	141	77	64	-	102	180	85	94	1	179	51·57
Colerain,	299	153	146	-	156	250	119	131	-	248	44·55
Conway,	316	173	142	1	122	298	150	148	-	298	41·26
Deerfield,	794	412	376	6	215	599	313	280	6	596	36·85
Erving,	90	57	33	-	40	114	66	48	-	114	32·73
Gill,	65	35	30	-	36	91	46	45	-	91	52 55
Greenfield,	732	374	355	3	374	547	238	307	2	543	40·40
Hawley,	82	44	37	1	38	78	41	35	2	78	48·66
Heath,	105	53	52	-	44	78	31	47	-	78	44·79

TABLE 4. — *Births, Marriages, and Deaths* — Continued.

	BIRTHS.				MARRIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
Franklin County — Con.											
Leverett,	122	60	62	-	73	130	68	61	1	125	51·85
Leyden,	91	32	59	-	33	65	27	37	1	62	55·64
Monroe,	37	20	17	-	9	31	17	14	-	31	44·07
Montague,	1,093	572	521	-	320	676	353	323	-	671	27·32
New Salem,	186	105	81	-	71	160	83	77	-	160	51·57
Northfield,	273	132	139	2	119	299	165	133	1	296	45·45
Orange,	461	235	226	-	225	398	200	195	3	398	37·07
Rowe,	89	54	35	-	39	83	42	41	-	81	51·15
Shelburne,	249	128	120	1	111	274	133	141	-	271	39·23
Shutesbury,	89	43	45	1	58	104	45	59	-	104	52·00
Sunderland,	139	81	58	-	46	134	61	73	-	134	47·22
Warwick,	131	70	61	-	69	127	64	63	-	126	55·55
Wendell,	83	39	44	-	46	81	44	37	-	78	46·48
Whately,	206	111	95	-	78	148	69	79	-	148	45·09
HAMPDEN COUNTY,	24,399	12,406	11,969	24	8,730	18,312	9,024	9,268	20	18,229	27·43
Agawam,	622	309	311	2	151	418	212	204	2	418	31·22
Blandford,	207	111	96	-	63	178	86	92	-	176	46·80
Brimfield,	192	87	103	2	71	212	98	114	-	212	46·82
Chester,	279	141	138	-	85	201	107	94	-	187	37·67
Chicopee,	2,830	1,442	1,388	-	937	2,203	1,065	1,138	-	2,191	25·12
Granville,	240	123	117	-	97	204	109	94	1	201	48·31

Hampden,	47	27	20	–	17	29	12	17	–	29	44·31
Holland,	53	26	26	1	17	50	23	26	1	49	48·54
Holyoke,	5,474	2,817	2,655	2	1,984	4,134	2,021	2,113	–	4,182	17·01
Longmeadow,	285	156	129	–	91	243	103	140	–	240	47·12
Ludlow,	275	137	137	1	95	229	109	120	–	227	43·60
Monson,	641	319	322	–	201	512	251	260	1	506	33·04
Montgomery,	67	34	33	–	19	44	24	20	–	44	35·22
Palmer,	1,227	612	614	1	517	794	394	400	–	785	28·04
Russell,	181	98	83	–	62	132	69	62	1	130	34·43
Southwick,	187	92	95	–	98	172	83	88	1	170	50·42
Springfield,	7,946	4,002	3,939	5	3,007	5,957	2,927	3,021	9	5,949	23·32
Tolland,	89	45	43	1	33	68	34	32	2	68	43·35
Wales,	172	90	82	–	77	139	64	75	–	136	42·39
Westfield,	1,932	1,018	911	3	754	1,388	718	669	1	1,375	32·30
West Springfield,	1,032	500	527	5	211	662	328	334	–	659	29·62
Wilbraham,	421	220	200	1	138	327	175	151	1	326	42·80
HAMPSHIRE COUNTY,	10,016	5,152	4,859	5	3,537	8,268	3,990	4,271	7	8,227	36·40
Amherst,	719	353	366	–	289	611	299	312	–	611	43·87
Belchertown,	506	248	258	–	163	421	204	217	–	421	45·34
Chesterfield,	147	82	65	–	75	133	66	67	–	133	48·65
Cummington,	154	83	71	–	64	135	55	80	–	134	52·92
Easthampton,	848	425	423	–	308	685	317	367	1	679	25·80
Enfield,	206	119	87	–	107	174	74	100	–	173	42·57
Goshen,	61	30	31	–	19	58	28	30	–	58	63·39
Granby,	155	73	82	–	53	134	59	75	–	133	43·74
Greenwich,	97	50	47	–	49	134	61	71	2	134	54·73
Hadley,	473	227	245	1	127	368	195	173	–	364	37·81
Hatfield,	487	245	242	–	87	249	110	139	–	248	36·08
Huntington,	227	116	111	–	93	210	104	106	–	210	38·54
Middlefield,	119	56	63	–	38	103	49	54	–	102	47·42
Northampton,	2,852	1,501	1,347	4	965	2,147	1,079	1,067	1	2,131	30·50

TABLE 4. — *Births, Marriages, and Deaths* — Continued.

	BIRTHS.				MARRIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
Hampshire County — Con.											
Pelham,	62	29	33	-	57	110	58	52	-	110	53·41
Plainfield,	69	31	38	-	31	67	33	34	-	67	59·59
Prescott,	84	38	46	-	49	82	40	42	-	82	54·02
South Hadley,	769	408	361	-	217	560	279	281	-	557	29·86
Southampton,	237	126	111	-	116	203	95	108	-	201	47·66
Ware,	887	455	432	-	328	904	442	460	2	901	27·33
Westhampton,	141	78	63	-	38	134	64	70	-	131	41·02
Williamsburg,	467	238	229	-	170	384	164	219	1	384	34·71
Worthington,	139	80	59	-	61	132	51	81	-	132	54·66
MIDDLESEX COUNTY,	72,608	37,530	34,479	99	24,315	52,261	25,374	26,848	39	50,724	29·49
Acton,	323	183	139	1	120	311	155	156	-	311	40·66
Arlington,	1,060	535	525	-	317	732	370	362	-	732	27·76
Ashby,	114	60	53	1	72	169	78	91	-	169	54·85
Ashland,	552	296	256	-	199	408	208	200	-	407	34·12
Ayer,	513	255	258	-	151	311	170	141	-	305	29·92
Bedford,	149	74	73	2	43	146	73	72	1	145	43·05
Belmont,	497	262	235	-	109	295	159	133	3	295	26·45
Billerica,	309	162	147	-	118	306	143	163	-	306	47·44
Boxborough,	62	29	33	-	27	43	16	27	-	43	56·18
Burlington,	102	58	44	-	42	102	51	50	1	102	50·90
Cambridge,	13,569	6,891	6,653	25	3,889	9,814	4,806	5,001	7	9,772	24·89

Carlisle,	88	51	37	-	40	119	54	65	-	119	52·44
Chelmsford,	471	234	237	-	137	403	190	213	-	398	38·26
Concord,	655	351	292	12	287	425	229	196	-	424	39·49
Dracut,	227	118	109	-	80	222	112	110	-	220	36 50
Dunstable,	39	20	19	-	26	60	24	36	-	59	60·45
Everett,	907	467	440	-	221	583	272	310	1	578	27·07
Framingham,	1,355	700	655	-	519	927	431	496	-	916	37·11
Groton,	324	166	158	-	152	326	170	156	-	324	47·71
Holliston,	622	323	298	1	243	603	298	305	-	598	34·66
Hopkinton,	1,035	511	523	1	275	746	371	375	-	743	27·28
Hudson,	960	496	464	-	302	603	289	314	-	603	28·16
Lexington,	347	194	153	-	146	450	205	245	-	449	40·66
Lincoln,	173	94	79	-	31	107	59	48	-	106	42·28
Littleton,	149	80	69	-	52	146	67	77	2	146	47·13
Lowell,	13,045	6,839	6,182	24	6,193	11,026	5,145	5,880	1	10,994	25·51
Malden,	2,509	1,296	1,212	1	800	1,756	865	890	1	1,753	27·75
Marlborough,	3,091	1,625	1,459	7	683	1,557	790	765	2	1,548	23·23
Maynard,	544	292	252	-	125	259	143	116	-	258	25·38
Medford,	1,275	654	620	1	508	1,095	531	564	-	1,086	35 67
Melrose,	894	466	428	-	280	617	296	319	2	613	34·50
Natick,	2,263	1,130	1,128	-	567	1,331	646	685	-	1,330	28 70
Newton,	3,448	1,763	1,684	1	1,046	2,144	1,051	1,090	3	2,107	31·90
North Reading,	189	95	94	-	81	165	72	93	-	165	44·74
Pepperell,	425	210	215	-	163	405	213	191	1	405	25·11
Reading,	545	272	273	-	251	442	221	221	-	441	40·79
Sherborn,	253	140	110	3	69	238	101	133	4	237	33·68
Shirley,	202	93	109	-	100	214	103	111	-	214	42·47
Somerville,	6,700	3,455	3,240	5	1,503	4,216	2,016	2,197	3	4,199	24·39
Stoneham,	1,044	530	514	-	386	738	349	389	-	738	31·12
Stow,	185	80	105	-	82	166	84	82	-	166	50·89
Sudbury,	235	122	113	-	64	201	87	114	-	201	44·58
Tewksbury,	157	82	75	-	73	197	105	92	-	191	43·74
Townsend,	394	216	176	2	165	403	199	203	1	403	42·70

Table 4. — *Births, Marriages, and Deaths* — Continued.

	BIRTHS.				MARRIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
Middlesex County — Con.											
Tyngsborough,	86	48	38	–	47	122	65	57	–	122	49·09
Wakefield,	1,274	658	615	1	492	933	479	452	2	931	30·26
Waltham,	2,804	1,481	1,321	2	963	1,674	789	882	3	1,671	31·90
Watertown,	1,298	696	599	3	521	878	411	467	–	873	28·42
Wayland,	439	224	215	–	144	292	140	152	–	289	33·53
Westford,	454	239	215	–	130	315	155	159	1	314	44·96
Weston,	236	121	115	–	84	180	92	88	–	180	46·07
Wilmington,	169	87	81	1	80	155	77	78	–	154	41·72
Winchester,	791	411	380	–	251	452	229	223	–	452	30·73
Woburn,	3,057	1,595	1,462	–	794	1,738	919	819	–	1,730	27·37
NANTUCKET COUNTY,	609	318	289	2	299	1,068	510	556	2	1,053	53·73
NORFOLK COUNTY,	21,084	10,851	10,216	17	6,429	14,764	7,367	7,390	7	14,719	34·63
Bellingham,	267	126	141	–	116	231	111	120	–	230	42·60
Braintree,	912	450	459	3	294	680	351	329	–	680	34·61
Brookline,	2,186	1,107	1,078	1	567	1,126	533	593	–	1,122	27·07
Canton,	839	444	395	–	253	613	299	314	–	611	33·70
Cohasset,	494	239	255	–	169	393	186	207	–	293	50·12
Dedham,	1,585	825	757	3	441	980	480	500	–	978	36·52
Dover,	91	50	41	–	45	112	62	50	–	111	52·81
Foxborough,	416	207	209	–	224	435	202	232	1	434	45·60

Franklin,	700	365	335	-	257	513	259	252	2	513	36·10
Holbrook,	247	113	134	-	90	150	69	81	-	149	38·75
Hyde Park,	1,801	898	900	3	469	1,071	517	553	1	1,069	24·74
Medfield,	196	102	94	-	82	206	87	119	-	206	50·24
Medway,	778	386	392	-	252	676	334	342	-	673	40·04
Milton,	650	344	305	1	220	442	236	206	-	440	34·90
Needham,	1,091	570	520	1	314	681	344	337	-	674	32·01
Norfolk,	258	132	126	-	60	160	77	83	-	160	39·58
Norwood,	343	244	199	-	107	280	152	127	1	279	36·59
Quincy,	2,251	1,148	1,100	3	705	1,662	885	777	-	1,656	32·47
Randolph,	936	477	459	-	284	801	386	415	-	799	34·13
Sharon,	230	112	117	1	99	272	133	139	-	269	39·23
Stoughton,	1,124	643	481	-	332	859	426	432	1	856	35·65
Walpole,	491	247	244	-	163	375	187	187	1	375	42·53
Weymouth,	2,514	1,321	1,193	-	712	1,523	784	739	-	1,520	32·03
Wrentham,	411	208	202	1	142	393	199	194	-	391	49·71
PLYMOUTH COUNTY,	14,075	7,347	6,711	17	5,548	11,567	5,683	5,856	28	11,503	40·44
Abington,	1,301	680	621	-	476	839	422	410	7	834	32·58
Bridgewater,	655	350	302	3	251	514	265	247	2	513	42·57
Brockton,	2,529	1,307	1,221	1	1,044	1,793	880	910	3	1,787	27·95
Carver,	200	105	95	-	76	156	84	72	-	156	43·62
Duxbury,	369	194	174	1	161	381	197	180	4	380	50·77
East Bridgewater,	460	238	222	-	215	472	245	226	1	472	43 67
Halifax,	93	49	44	-	43	101	40	61	-	101	55·40
Hanover,	358	182	176	-	148	327	156	167	4	318	44·37
Hanson,	220	105	115	-	94	188	94	94	-	188	49 48
Hingham,	937	486	447	4	348	840	408	431	1	838	42·65
Hull,	48	23	23	2	10	76	53	23	-	68	31·75
Kingston,	220	114	106	-	97	244	111	133	-	242	49·55
Lakeville,	153	75	78	-	62	149	66	83	-	147	51·51
Marion,	166	83	83	-	70	157	75	82	-	154	47·98

Table 4. — *Births, Marriages, and Deaths* — Continued.

	BIRTHS.				MARRIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
Plymouth County — Con.											
Marshfield,	230	113	116	1	122	298	132	164	2	295	51·14
Mattapoisett,	160	80	80	-	112	224	109	115	-	219	50·09
Middleborough,	915	479	436	-	408	754	363	390	1	754	44 50
Pembroke,	235	126	109	-	103	233	112	120	1	232	48·66
Plymouth,	1,622	834	786	2	580	1,244	606	638	-	1,234	39·98
Plympton,	120	60	60	-	68	149	80	69	-	149	49·42
Rochester,	210	101	109	-	84	177	76	101	-	176	52·92
Rockland,	645	368	277	-	181	430	223	206	1	429	30·51
Scituate,	496	262	233	1	173	487	240	247	-	486	44·03
South Abington,	336	194	142	-	117	233	124	109	-	232	35·07
South Scituate,	301	157	142	2	145	329	155	173	1	328	47·44
Wareham,	801	436	365	-	261	500	251	249	-	500	37·73
West Bridgewater,	267	131	136	-	99	272	116	156	-	271	42·07
SUFFOLK COUNTY,	111,697	55,845	54,844	8	36,626	84,743	42,541	42,185	17	84,643	25·13
Boston,	106,082	54,094	51,984	4	34,958	80,687	40,536	40,145	6	80,465	25·07
Chelsea,	5,127	2,512	2,612	3	1,907	3,738	1,846	1,883	9	3,699	28·48
Revere,	369	186	182	1	74	225	109	114	2	209	32·89
Winthrop,	119	63	56	-	47	93	50	43	-	90	33·17

WORCESTER COUNTY,	54,584	28,287	26,231	76	17,149	38,174	18,953	19,184	37	37,962	32·39
Ashburnham,	389	190	198	1	159	352	183	169	-	352	41·07
Athol,	735	411	323	1	427	662	326	336	-	657	39·04
Auburn,	240	120	120	-	87	171	86	85	-	170	41·96
Barre,	410	224	186	-	168	453	226	227	-	453	42·61
Berlin,	191	108	83	-	72	166	73	92	1	166	46·61
Blackstone,	1,197	637	558	2	345	697	364	332	1	672	43·02
Bolton,	126	62	64	-	58	163	79	84	-	163	52·96
Boylston,	146	86	60	-	55	124	61	63	-	124	40·86
Brookfield,	568	275	293	-	195	448	222	225	1	439	38·77
Charlton,	292	168	124	-	123	264	110	152	2	264	54·87
Clinton,	1,952	1,049	901	2	663	1,136	555	580	1	1,135	25·18
Dana,	112	65	47	-	68	119	53	65	1	118	44·95
Douglas,	755	395	360	-	194	442	208	232	2	437	30·24
Dudley,	796	400	396	-	144	506	261	245	-	503	27·60
Fitchburg,	2,912	1,479	1,432	1	1,068	2,053	1,005	1,048	-	2,046	30·21
Gardner,	1,024	553	471	-	339	632	298	334	-	720	26·28
Grafton,	852	426	418	8	284	602	308	293	1	586	36·68
Hardwick,	451	248	203	-	179	262	127	135	-	260	44·00
Harvard,	159	78	81	-	70	248	100	148	-	247	57·12
Holden,	516	245	267	4	182	365	182	183	-	358	35·69
Hubbardston,	192	109	83	-	96	270	140	129	1	268	49·26
Lancaster,	263	115	147	1	127	293	148	145	-	292	44·34
Leicester,	609	302	307	-	176	490	258	232	-	489	36·08
Leominster,	1,288	642	644	2	288	846	401	445	-	841	35·87
Lunenburg,	133	74	69	-	79	199	103	96	-	199	54·26
Mendon,	271	152	119	-	67	202	99	102	1	200	42·65
Milford,	2,446	1,246	1,200	-	609	1,912	940	971	1	1,911	28·31
Millbury,	1,364	693	670	1	409	905	460	444	1	900	27·52
New Braintree,	97	63	34	-	29	91	48	43	-	90	47·60
Northborough,	310	162	148	-	106	255	125	130	-	254	45·11
Northbridge,	1,034	540	494	-	293	711	364	347	-	706	26·66

Table 4. — *Births, Marriages, and Deaths* — Concluded.

	BIRTHS.				MAR-RIAGES.	DEATHS.					
	Persons.	Sex.			Couples.	Persons.	Sex.			Number whose ages are registered.	Average Ages.
		Males.	Females.	Unk.			Males.	Females.	Unk.		
Worcester County — Con.											
North Brookfield,	·1,220	621	599	-	362	742	396	345	1	739	27·58
Oakham,	168	83	85	-	59	153	74	79	-	152	52.24
Oxford,	573	281	292	-	169	489	245	244	-	485	39·48
Paxton,	79	40	39	-	41	113	53	60	-	112	55·11
Petersham,	167	94	73	-	88	207	106	100	1	207	52·45
Phillipston,	95	49	46	-	52	97	49	48	-	97	48·97
Princeton,	138	69	69	-	67	207	92	115	-	307	49·90
Royalston,	169	84	85	-	107	233	98	135	-	230	50·99
Rutland,	229	112	117	-	68	199	100	99	-	198	48·22
Shrewsbury,	342	185	156	1	101	278	143	135	-	277	40·65
Southborough,	385	197	188	-	134	296	139	157	-	295	35·33
Southbridge,	1,953	1,038	915	-	590	1,018	473	544	1	1,004	25·93
Spencer,	2,459	1,254	1,202	3	407	1,284	638	642	4	1,273	18·59
Sterling,	222	102	119	1	111	243	106	133	4	237	49·21
Sturbridge,	352	178	172	2	169	358	183	175	-	354	40·44
Sutton,	817	438	367	12	306	489	248	237	4	487	35·85
Templeton,	565	318	247	-	208	424	202	222	-	424	40·68
Upton,	417	198	219	-	139	313	158	155	-	213	64·16
Uxbridge,	666	341	325	-	197	458	220	237	1	457	41·93
Warren,	856	453	403	-	277	494	241	253	-	494	34·06
Webster,	1,871	988	882	1	575	964	502	462	-	960	22·34
Westborough,	1,165	594	570	1	319	726	340	386	-	723	30·43

West Boylston,	920	456	464	–	323	533	270	263	–	528	26·96
West Brookfield,	411	213	198	–	137	306	157	149	–	306	37·62
Westminster,	292	141	150	1	127	299	137	162	–	296	49·95
Winchendon,	752	402	346	4	292	635	327	307	1	632	39·90
Worcester,	15,540	8,068	7,445	27	4,591	10,587	5,349	5,232	6	10,534	27·22

NOTE. — Norwood was incorporated from Dedham and Walpole; and Holbrook was separated from Randolph February, 1872.

Charlestown, West Roxbury, and Brighton were added to Boston January, 1874. North Bridgewater was changed to Brockton and Rockland was incorporated from Abington March, 1874.

South Abington was incorporated March, 1875, from Abington, except a small portion from East Bridgewater.

Merrimac was incorporated April, 1876, from Amesbury.

Hampden was separated from Wilbraham March, 1878. North Adams was separated from Adams April, 1878.

Cottage City was separated from Edgartown, 1880.

The present names of the cities and towns are used in the table.

There has been no change of county, except that Brighton and Charlestown from Middlesex, and West Roxbury from Norfolk, were added to Suffolk County. In the three years of separate existence, there were in Charlestown 2,503 births, 1,146 marriages, 2,191 deaths — average age at death, 24·75; in Brighton, 514 births, 147 marriages, 318 deaths — average age at death, 27·83; in West Roxbury, 807 births, 180 marriages, 440 deaths — average age at death, 28·92. These three towns are included for 1871, 1872, and 1873 with Boston, and also in the figures for Suffolk County on page 16, but not on page 4. On pages 12 and 14, the county figures of Middlesex and Norfolk exclude the three towns; on page 4 they include them.

There were 3,196 births and 4,829 deaths in the workhouse and almshouses of the State included in the statistics of the State, but not assigned to their several counties or towns.

BIRTHS.

TABLE 5 shows a still increasing number of births in 1881, although still less than in 1874, just previous to the last period of financial depression.

TABLE 5.—*Births for Twenty Years.*

YEARS.	Born alive.	Still-born.	Total.	YEARS.	Born alive.	Still-born.	Total.
1862, .	32,275	907	33,182	1872, .	43,235	1,283	44,518
1863, .	30,314	903	31,217	1873, .	44,481	1,246	45,727
1864, .	30,449	856	31,305	1874, .	45,631	1,469	47,100
1865, .	30,249	859	31,108	1875, .	43,996	1,374	45,370
1866, .	34,085	1,046	35,131	1876, .	42,149	1,274	43,423
1867, .	35,062	1,007	36,069	1877, .	41,850	1,254	43,104
1868, .	36,193	1,050	37,243	1878, .	41,238	1,261	42,499
1869, .	36,141	1,094	37,235	1879, .	40,295	1,261	41,556
1870, .	38,259	1,019	39,278	1880, .	44,217	1,297	45,514
1871, .	39,791	1,390	41,181	1881, .	45,220	1,466	46,686

The rate for 1880, including still-births is 25·00; or ·79 for still-born alone and 24·21 for those born alive.

In Table 4, the birth-rates to the last census year show quinquennial averages all higher than the birth-rate of 1881 (24·21), which is the lowest but two in the thirty years. The average birth-rate, too, is shown to be a little higher in the last period of ten years than in the second, but much lower than in the first.

TABLE 6. — *Showing Birth-Rates 1851–1880.*

YEARS.	Births to 1,000 of Population.		YEARS.	Births to 1,000 of Population.	
1851, . . .	28·62	28.88	1866, . . .	26·16	26·07
1852, . . .	29·00		1867, . . .	26·17	
1853, . . .	28·76		1868, . . .	26·26	
1854, . . .	29·05		1869, . . .	25·20	
1855, . . .	29·01		1870 . . .	26·25	
1856, . . .	29·91	29·52	1871, . . .	26·63	27·62
1857, . . .	20·17		1872, . . .	28·22	
1858, . . .	28·97		1873, . . .	28·21	
1859, . . .	29·26		1874, . . .	28·32	
1860, . . .	29·28		1875, . . .	26·63	
1861, . . .	28·63	25·36	1876, . . .	25·51	24·75
1862, . . .	25·92		1877, . . .	25·25	
1863, . . .	24·20		1878, . . .	24·73	
1864, . . .	24·17		1879, . . .	23·46	
1865, . . .	23·87		1880, . . .	24·80	

The calculated population for the counties indicates birth-rates fluctuating according to influences affecting the means of living more or less favorably, but diminishing most in the Cape counties, where the inroad of foreigners has been least, except in the very small counties of Dukes and Nantucket, where an increased birth-rate with a diminishing population leads one to suspect that the change may be due to greater accuracy in recording and returning the births.

In the following table the rates of increase of population from one census to the next are determined, and the population for the intermediate years is then calculated.

Table 7. — *Birth Rates, 1865–1881, and Births, 1880–1881, by Counties.*

	Barnstable	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.	Whole State.
Population, 1865, . . .	34,610	56,944	89,395	8,948	171,034	31,340	64,570	39,269	220,384	116,306	63,107	208,214	162,912	1,267,031
" 1866, . . .	34,228	58,439	91,944	8,730	176,294	31,595	67,127	40,243	230,253	110,355	63,552	219,457	168,479	1,302,989
" 1867, . . .	33,851	59,975	94,565	8,517	182,134	31,852	69,785	41,242	240,564	104,712	64,001	231,302	174,236	1,339,968
" 1868, . . .	33,478	61,550	97,261	8,309	188,168	32,110	72,549	42,265	251,338	99,350	64,452	243,783	180,191	1,377,996
" 1869, . . .	33,109	63,167	100,034	8,107	194,402	32,372	75,422	43,313	262,593	94,266	64,907	256,950	186,348	1,417,103
" 1870, . . .	32,744	64,827	102,886	7,910	200,843	32,635	78,409	44,388	274,353	89,443	65,365	270,802	192,716	1,457,351
" 1871, . . .	32,623	65,501	107,322	7,778	205,153	32,844	81,357	44,474	276,271	89,218	66,145	287,460	196,110	1,494,338
" 1872, . . .	32,502	66,182	112,825	7,648	209,557	33,055	84,418	44,561	278,215	88,992	66,935	305,121	199,564	1,532,264
" 1873, . . .	32,382	66,871	118,611	7,520	214,054	33,267	87,592	44,647	280,167	88,768	67,735	323,867	203,079	1,571,152
" 1874, . . .	32,263	67,567	124,693	7,395	218,650	33,481	90,886	44,734	282,133	88,544	68,543	343,765	206,655	1,611,028
" 1875, . . .	32,144	68,270	131,087	7,272	223,342	33,696	94,304	44,821	284,112	88,321	69,362	364,886	210,295	1,651,912
" 1876, . . .	32,144	68,270	131,087	7,272	223,342	33,696	94,304	44,821	284,112	88,321	69,362	364,886	210,295	1,651,912
" 1877, . . .	32,020	68,308	131,468	7,308	224,359	33,806	94,776	44,936	285,730	88,714	69,585	365,992	211,091	1,657,265
" 1878, . . .	31,926	68,361	132,057	7,364	225,948	33,979	95,514	45,117	288,258	89,328	69,934	367,720	212,336	1,667,200
" 1879, . . .	31,908	68,665	135,079	7,650	234,001	34,854	99,252	46,033	301,070	93,426	71,703	376,475	218,644	1,717,200
" 1880, . . .	31,897	69,032	139,040	8,027	244,535	36,001	104,142	47,232	317,830	96,507	74,018	387,927	226,897	1,783,085
Birth Rates, 1865, . . .	22·3	23·6	22·1	15·1	21·8	18·2	24·2	21·1	24·4	24·8	20·9	27·5	24·5	23·8
" 1866, . . .	23·2	27·7	25·0	16·5	26·3	19·3	28·1	24·1	25·9	28·2	25·5	27·0	26·9	26·1
" 1867, . . .	22·0	25·8	25·9	14·9	25·1	18·5	26·4	24·7	25·9	31·1	23·8	27·4	26·8	26·1
" 1868, . . .	22·2	27·9	25·0	12·2	24·1	19·6	28·3	23·8	26·4	23·1	24·0	30·9	26·4	26·2
" 1869, . . .	20·6	22·3	24·8	11·4	23·8	20·0	25·9	22·1	25·6	25·6	21·8	30·6	25·6	25·5
" 1870, . . .	20·4	24·9	26·1	12·5	23·7	19·7	25·1	22·9	27·1	25·2	22·4	31·8	26·0	26·2
" 1871, . . .	21·0	27·2	25·6	13·8	24·9	20·0	27·4	22·3	26·4	25·9	22·1	31·3	27·2	26·6
" 1872, . . .	20·5	24·7	27·1	15·6	29·4	20·3	27·4	24·5	29·6	27·1	21·6	31·9	27·6	28·2
" 1873, . . .	19·0	24·7	28·0	14·7	26·5	22·0	29·9	24·8	30·6	28·3	22·8	31·6	28·5	28·3
" 1874, . . .	19·7	24·9	26·1	15·1	26·6	21·9	28·8	23·4	28·3	24·5	22·1	35·7	27·5	28·3
" 1875, . . .	20·5	24·6	26·2	16·8	25·6	20·0	27·9	21·3	25·5	25·8	21·2	31·7	26·4	26·6
" 1876, . . .	18·8	22·5	24·5	16·3	23·3	18·2	25·9	21·8	25·1	22·9	20·9	31·0	25·9	25·5
" 1877, . . .	18·9	22·5	24·1	18·8	23·9	19·5	24·8	21·0	25·8	23·1	20·9	30·2	24·1	25·2
" 1878, . . .	18·1	22·0	24·0	16·7	23·7	18·1	23·7	19·8	25·1	22·8	19·1	29·1	25·1	24·7
" 1879, . . .	16·9	22·2	21·1	12·1	21·7	18·2	23·9	20·5	23·4	21·4	18·1	28·5	23·5	23·4
" 1880, . . .	15·8	23·3	25·6	14·7	23·8	18·0	25·4	20·6	25·3	21·4	18·2	28·8	25·4	24·8
Births, 1880, . . .	505	1,606	3,560	118	5,815	649	2,645	972	8,030	2,074	1,346	11,148	5,749	44,917
" 1881, . . .	485	1,664	4,093	101	5,864	682	2,585	1,005	8,067	2,141	1,450	[illegible]		

The births, as affected by density of population, are shown in Table 8 to be of the highest rates in the larger towns where there is the largest percentage of laborers of foreign origin.

TABLE 8. — *Birth-Rates and Births according to Population.*

CITIES.	Population by Census of 1880.	BIRTH-RATES.				BIRTHS.	
		1865.	1870.	1875.	1880.	1880.	1881.
Boston, ...	362,839	27·42	32·22	33·12	29·14	10,573	10,463
Lowell, ...	59,475	21·58	22·57	25·98	29·64	1,763	1,831
Worcester, ...	58,291	31·67	29·97	30·13	30·50	1,778	1,800
Cambridge, ...	52,669	29·88	32·98	26·17	30·36	1,599	1,498
Fall River, ...	48,961	20·82	31·87	32·55	29·23	1,431	1,876
Lawrence, ...	39,151	27·84	25·41	28·84	25·64	1,104	1,081
Lynn, ...	38,274	26·85	25·96	24·57	22 99	880	930
Springfield, ...	33,340	24·77	28·31	29·24	24·99	833	869
Salem, ...	27,563	11·42	9·41	24·37	24·45	674	708
New Bedford, ...	26,875	19·46	21·52	21·86	26 42	710	727
Somerville, ...	24,933	29·82	35·95	33·52	24·78	618	664
Chelsea, ...	21,782	29·71	27·38	26·62	23·37	509	585
Taunton, ...	21,213	22·18	26·35	24·21	25·55	542	602
Gloucester, ...	19,329	22·11	37·81	35·75	28·76	556	542
Holyoke, ...	21,915	24·07	30·64	35·65	34·13	748	658
Newton, ...	16,995	23·28	22·85	18·25	18·63	316	396
The 16 cities, ...	873,605	25·71	27·17	29·70	28·19	24,634	25,230
The rest of the State, ...	909,480	22·64	25·56	23·77	21·53	19,583	19,990
The whole State, ...	1,783,085	23·87	26·25	26·63	24·80	44,217	45,220
3 towns of popul. 50,000 to 60,000	170,435	-	-	-	30·16	5,140	5,129
1 town of popul. 40,000 to 50,000	48,961	-	-	-	29·23	1,431	1,876
3 towns of popul 30,000 to 40,000	110,765	-	-	-	25·43	2,817	2,880
6 " " 20,000 to 30,000	144,251	-	-	-	26·35	3,801	3,944
17 " " 10,000 to 20,000	218,422	-	-	-	24·65	5,364	5,586
26 " " 5,000 to 10,000	175,571	-	-	-	24·88	4,368	4,375
28 " " 4,000 to 5,000	124,359	-	-	-	22·12	2,751	2,870
32 " " 3,000 to 4,000	113,509	-	-	-	20·52	2,329	2,324
53* " " 2,000 to 3,000	127,201	-	-	-	18·13	2,306	2,563
92 " " 1,000 to 2,000	132,469	-	-	-	16·68	2,209	2,262
43 " " less than 1,000	54,303	-	-	-	17·62	957	838

* Excluding births at State Almshouse.

Seasons. — In 1881, as in 1880, the greatest birth-rate was in the third quarter rather than in the fourth. Otherwise the order by quarters was as has occurred in the majority of years.

TABLE 9.—*Births and Birth-Rates, by Months and Quarters, 1881.*

	Births registered in each Month.	Births registered in each Quarter.	Monthly Percentage of Births.	Quarterly Percentage of Births.
January, ...	3,641	10,819	8·1	24·0
February, ...	3,475		7·7	
March, ...	3,703		8·2	
April, ...	3,567	10,875	7·9	24·1
May, ...	3,713		8·2	
June, ...	3,595		8·0	
July, ...	3,949	12,068	8·7	26·6
August,.	4,263		9·4	
September, ...	3,856		8·5	
October, ...	3,827	11,453	8·4	25·3
November, ...	3,783		8·4	
December, ...	3,843		8·5	
Not stated, ...	5	-	-	-
The year, ...	45,220	-	100·0	100·0

Calculated for fifteen years, 23·23 and 23·36 per cent. of the births occurred in the first two quarters, or 46·59 per cent. in the first half of the year. In the second half the percentage was 53·41 or 26·77 in the third and 26·64 in the fourth quarter. The average for the period of years shows much less fluctuation in the seasons than for a single year. The months in order were August, July, September, December, October, November, May, March, January, June, April, February.

TABLE 10. — LIVING BIRTHS.* — *By Months, Quarters, and Periods of Six Months, — Fifteen Years.*

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1867 .	2,590	2,432	2,848	2,504	2,804	2,759	3,023	3,187	3,029	3,330	3,208	3,280
1868 .	2,769	2,640	2,966	2,709	2,821	2,813	3,253	3,302	3,197	3,319	3,245	3,138
1869 .	2,632	2,455	2,864	2,628	2,793	2,858	3,241	3,403	3,315	3,373	3,162	3,399
1870 .	2,916	2,650	3,102	3,015	3,094	3,083	3,248	3,494	3,310	3,470	3,323	3,542
1871 .	3,131	2,883	3,206	2,997	3,063	3,103	3,426	3,710	3,435	3,721	3,407	3,702
1872 .	3,104	3,216	3,503	3,248	3,385	3,536	3,857	4,103	3,862	3,860	3,711	3,844
1873 .	3,348	3,230	3,616	3,177	2,384	3,571	3,777	4,087	3,974	4,053	4,000	4,261
1874 .	3,598	3,252	3,750	3,443	3,686	3,689	4,018	4,266	4,010	4,032	3,871	3,994
1875 .	3,305	3,204	3,570	3,391	3,564	3,603	3,820	4,071	3,937	3,838	3,742	3,933
1876 .	3,173	3,237	3,605	3,342	3,299	3,343	3,651	3,950	3,564	3,755	3,515	3,695
1877 .	3,404	3,127	3,436	3,078	3,146	3,314	3,735	3,854	3,677	3,796	3,607	3,673
1878 .	3,181	3,116	3,442	3,172	3,248	3,121	3,525	3,765	3,639	3,776	3,555	3,690
1879 .	3,226	3,064	3,322	3,048	3,125	3,275	3,544	3,720	3,372	3,476	3,505	3,612
1880 .	3,372	3,369	3,579	3,521	3,708	3,642	3,840	3,921	3,845	3,845	3,791	3,779
1881 .	3,641	3,475	3,703	3,567	3,713	3,595	3,949	4,263	3,856	3,827	3,783	3,843
Av. .	3,159	3,023	3,367	3,122	3,188	3,287	3,593	3,806	3,601	3,698	3,561	3,692
		9,549			9,597			11,000			10,951	
			19,146							21,951		

The proportion of male to female births varies very little from year to year, the excess of males being tolerably uniform in all countries. Among the still-born males preponderate so much more than among those born alive, as their greater size exposes them to more risks in child-birth. The excess of females over males of illegitimate birth for the period of twenty-eight years is not readily explained; the variation from year to year is quite large and seems to be quite accidental.

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* Including 357 in which the month was not reported.

TABLE 11. — BIRTHS. — *Proportion of Males to Females. — Twenty-nine Years.*

		1880.	1881.	Previous Twenty-eight Years.
Born alive, . .	Males, . .	22,667	23,014	524,533
	Females, .	21,396	22,069	495,650
	Not stated, .	154	137	2,240
Males to 100 females, . .		105·9	104·3	105·8
Still-born, . .	Males, . .	710	794	15,505
	Females, .	513	585	10,445
	Not stated, .	74	87	3,018
Males to 100 females, . .		138·4	135·7	148·4
Illegitimate, .	Males, . .	411	391	4,615
	Females, .	366	404	4,666
	Not stated, .	1	6	43
Males to 100 females, . .		112·3	96·8	98·9

Table 12 shows the general uniformity in the proportion of male to female births for the State at large, and a greater variation in places of less population. The number of births with sex unrecorded was 137; in Berkshire County, 2; Bristol, 17; Dukes and Nantucket, 1; Essex, 1; Franklin, 2; Hampden, 12; Hampshire, 4; Middlesex, 64; Plymouth, 4; Suffolk, 2; Worcester, 28.

TABLE 12. — BIRTHS. — *Proportion of Males,* 1863–1881.*

COUNTIES.	1881.		1880.	1879.	1878.	1863-1877.		
	Births.	Males per cent.	Males per cent.	Males per cent.	Males per cent.	Males per cent.	Females per cent.	Males to 100 Females.
Barnstable,	485	49·5	53·8	50·0	50·9	51·95	47·76	108·78
Berkshire,	1,664	50·6	51·5	50·6	48·2	51·97	47·89	108·51
Bristol,	4,093	50·2	51·9	50·2	50·3	51·85	47·97	107·94
Dukes and Nantucket,	101	54·0	50·4	51·6	53·7	52·80	46·76	112·93
Essex,	5,864	51·2	50·5	50·9	51·4	51·63	48·27	106·97
Franklin,	682	53·5	54·1	52·7	50·1	51·52	48·35	106·55
Hampden,	2,585	51·5	51·1	51·1	50·5	51·02	48·86	104·43
Hampshire,	1,005	50·6	48·4	50·1	51·6	52·05	47·84	108·81
Middlesex,	8,067	50·9	52·4	52·0	52·3	51·25	48·65	105·34
Norfolk,	2,141	52·0	50·5	51·6	51·1	51·13	48·70	104·96
Plymouth,	1,450	52·7	51·8	51·3	54·6	51·84	48·00	108·00
Suffolk,	11,124	50·7	50·8	51·2	51·1	51·00	48·99	104·08
Worcester,	5,959	51·2	52·3	51·7	52·2	51·48	48·40	106·36
The State,	45,220	51·4	51·4	51·3	51·4	51·40	48·50	105·93

* Percentages exclude births where the sex was not recorded.

TABLE 13.—*Parentage of the Children Born Alive in the Several Counties of Massachusetts during the year 1881.*

	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Aggregates, ...	45,220	485	1,664	4,093	101	5,864	682	2,585	1,005	8,067	2,141	1,450	11,124	5,959
Both parents native-born, . .	18,218	359	868	1,465	81	2,700	418	986	467	3,084	1,048	1,026	3,497	2,219
Both parents foreign-born, . .	18,169	80	504	2,021	9	2,161	190	1,115	379	3,360	689	242	4,815	2,604
Native-born father and foreign-born mother, ...	3,267	19	106	272	5	472	28	205	59	604	182	58	907	350
Foreign-born father and native-born mother, ...	4,119	21	164	284	5	459	34	234	80	784	206	92	1,168	588
Not stated, ...	1,447	6	22	51	1	72	12	45	20	235	16	32	737	198

PLURALITY CASES—(Included above).

		STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Totals, . .	Aggregates, .	805	14	25	53	2	96	10	38	20	187	47	27	174	112
	Males, . .	380	3	11	29	1	50	6	15	13	82	23	17	82	48
	Females, .	423	11	14	24	1	46	2	23	7	105	24	10	92	64
	Unknown, .	2	-	-	-	-	-	2	-	-	-	-	-	-	-
Both parents native-born, . .	Males, . .	143	2	6	7	1	23	1	7	8	30	2	9	23	24
	Females, .	151	10	6	7	1	17	1	9	4	30	10	8	24	24
	Unknown, .	2	-	-	-	-	-	2	-	-	-	-	-	-	-

Both parents foreign-born,	Males,	176	-	3	19	-	20	5	5	4	39	15	5	43	18
	Females,	202	-	6	16	-	22	1	13	2	64	6	1	43	28
Native-born father,	Males,	28	1	-	3	-	5	-	2	-	3	4	3	5	2
	Females,	22	1	-	1	-	3	-	-	-	3	4	1	7	2
Native-born mother,	Males,	30	-	2	-	-	2	-	1	1	10	2	-	8	4
	Females,	43	-	2	-	-	4	-	1	1	8	4	-	15	8
Not stated,	Males,	3	-	-	-	-	-	-	-	-	-	-	-	3	-
	Females,	5	-	-	-	-	-	-	-	-	-	-	-	3	2

ILLEGITIMATE BIRTHS—(Included above).

Totals,	Aggregates,	801	11	11	38	4	71	7	20	10	132	17	21	432	27
	Males,	391	5	3	16	2	30	5	8	5	74	10	10	209	14
	Females,	404	6	8	21	1	41	2	9	5	57	7	11	223	13
	Unknown,	6	-	-	1	1	-	-	3	-	1	-	-	-	-
Native-born mother,	Males,	230	4	3	16	2	24	4	7	5	26	10	8	109	12
	Females,	254	6	5	17	1	33	2	5	5	31	5	9	125	10
	Not stated,	3	-	-	1	1	-	-	1	-	-	-	-	-	-
Foreign-born mother,	Males,	144	1	-	-	-	6	1	1	-	44	-	2	87	2
	Females,	122	-	3	4	-	7	-	2	-	24	2	2	77	1
Not stated,	Males,	17	-	-	-	-	-	-	-	-	4	-	-	13	-
	Females,	28	-	-	-	-	1	-	2	-	2	-	-	21	2
	Not stated,	3	-	-	-	-	-	-	2	-	1	-	-	-	-

TABLE 13. — *Parentage of the Children Born Alive in the Several Counties of Massachusetts during the year 1881.*

		STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Aggregates, ...		45,220	485	1,664	4,093	101	5,864	682	2,585	1,005	8,067	2,141	1,450	11,124	5,959
Both parents native-born, . .		18,218	359	868	1,465	81	2,700	418	986	467	3,084	1,048	1,026	3,497	2,219
Both parents foreign-born, . .		18,169	80	504	2,021	9	2,161	190	1,115	379	3,360	689	242	4,815	2,604
Native-born father and foreign-born mother, ...		3,267	19	106	272	5	472	28	205	59	604	182	58	907	350
Foreign-born father and native-born mother, ...		4,119	21	164	284	5	459	34	234	80	784	206	92	1,168	588
Not stated, ...		1,447	6	22	51	1	72	12	45	20	235	16	32	737	198

PLURALITY CASES — (Included above).

		STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Totals, . .	Aggregates, .	805	14	25	53	2	96	10	38	20	187	47	27	174	112
	Males, . .	380	3	11	29	1	50	6	15	13	82	23	17	82	48
	Females, .	423	11	14	24	1	46	2	23	7	105	24	10	92	64
	Unknown, .	2	-	-	-	-	-	2	-	-	-	-	-	-	-
Both parents native-born, . .	Males, . .	143	2	6	7	1	23	1	7	8	30	2	9	23	24
	Females, .	151	10	6	7	1	17	1	9	4	30	10	8	24	24
	Unknown, .	2	-	-	-	-	-	2	-	-	-	-	-	-	-

Both parents foreign-born,	Males,	176	–	8	19	–	20	5	5	4	39	15	5	43	18
	Females,	202	–	6	16	–	22	1	13	2	64	6	1	43	28
Native-born father,	Males,	28	1	–	3	–	5	–	2	–	3	4	3	5	2
	Females,	22	1	–	1	–	3	–	–	–	3	4	1	7	2
Native-born mother,	Males,	30	–	2	–	–	2	–	1	1	10	2	–	8	4
	Females,	43	–	2	–	–	4	–	1	1	8	4	–	15	8
Not stated,	Males,	3	–	–	–	–	–	–	–	–	–	–	–	3	–
	Females,	5	–	–	–	–	–	–	–	–	–	–	–	3	2

ILLEGITIMATE BIRTHS—(Included above).

Totals,	Aggregates,	801	11	11	38	4	71	7	20	10	132	17	21	432	27
	Males,	391	5	3	16	2	30	5	8	5	74	10	10	209	14
	Females,	404	6	8	21	1	41	2	9	5	57	7	11	223	13
	Unknown,	6	–	–	1	1	–	–	3	–	1	–	–	–	–
Native-born mother,	Males,	230	4	3	16	2	24	4	7	5	26	10	8	109	12
	Females,	254	6	5	17	1	33	2	5	5	31	5	9	125	10
	Not stated,	3	–	–	1	1	–	–	1	–	–	–	–	–	–
Foreign-born mother,	Males,	144	1	–	–	–	6	1	1	–	44	–	2	87	2
	Females,	122	–	3	4	–	7	–	2	–	24	2	2	77	1
Not stated,	Males,	17	–	–	–	–	–	–	–	–	4	–	–	13	–
	Females,	28	–	–	–	–	1	–	2	–	2	–	–	21	2
	Not stated,	3	–	–	–	–	–	–	2	–	1	–	–	–	–

By Table 13 it may be seen that only 49 more children were born in the year of native parents than of foreign, while the number with mixed parentage increases to 7,386 as compared with 7,185 in 1880. There were 196 more in 1881 (1,447) than in 1880, where the parentage was not stated in the returns. In Dukes and Nantucket the births of native parents were nine to one of foreign; in Barnstable County, four and a half to one; in Plymouth, four and a quarter; in Franklin, two to one; in the other counties, in the following order in excess of native births over those of foreign origin: Norfolk, Berkshire, Hampshire, and Essex. The births of foreign parentage exceeded those of natives in Suffolk, Bristol, Hampden, Worcester, and Middlesex.

The plurality cases occurred somewhat oftener among foreigners.

Suffolk County has somewhat over one-half of the illegitimate births.

The last ten years show an increase of nearly two-thirds in the percentage of births of mixed percentage. That of the births of native-born parents has slightly increased, and the diminution is quite striking in the percentage of births of foreign parents. The distinction between natives and foreigners is becoming less and less marked.

In a third of a century (see Table 15), the decrease in births of natives has been very marked, while the increase in those of foreign parents apparently reached its height ten years ago, and the mixture of races is still becoming more prominent from year to year.

TABLE 14. — *Percentage* of American and Foreign Living Births in 1881, and in each of the Previous Ten Years.*

YEARS.	PARENTS.			Births with Parentage not reported.
	Native-Born.	Foreign-Born.	One Foreign Born.	
1871, ...	40·17	48·61	11·22	460
1872, ...	39·35	49·21	11·34	337
1873, ...	39·98	48·24	11·78	340
1874, ...	38·89	48·43	12·68	608
1875, ...	39·87	46·71	13·42	564
1876, ...	40·64	45·00	14·36	836
1877, ...	41·17	44·03	14·80	808
1878, ...	42·01	42·35	15·64	846
1879, ...	42·49	41·29	16·22	831
1880, ...	42·19	41·08	16·73	1,251
1881, ...	41·62	41·51	16·87	1,447

* Excluding births with parentage not reported.

TABLE 15. — *Percentage of American and Foreign Living Births.*

	Average 1849-53.	Average 1854-58.	Average 1859-63.	Average 1864-68.	Average 1869-73.	Average 1874-78.	Average 1879-80.	1881.
American, . .	63·02	50·38	46·06	43·85	40·54	40·52	42·34	41·62
Foreign, . .	35·96	44·12	46·89	47·73	48·48	45·30	41·19	41·51
One parent foreign	1·02	5·50	7·05	8·42	10·98	14·18	16·48	16·87

TABLE 16. — *Number of Births during each of the Twenty Years, 1860–81, exhibiting the Sex and Parentage.*

	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.
Totals,	32,275	30,314	30,449	30,249	34,085	35,062	36,193	36,141	38,259	39,791
Males,	16,594	15,692	15,634	15,623	17,394	17,859	18,571	18,606	19,803	20,289
Females,	15,604	14,579	14,745	14,554	16,603	17,140	17,574	17,500	18,434	19,488
Unknown,	77	43	70	72	88	63	48	35	22	14
PARENTAGE.										
Native,	14,423	13,066	13,453	13,276	15,014	14,696	15,370	15,100	15,563	15,797
Foreign,	14,941	14,540	14,266	14,130	15,989	16,911	16,995	17,229	18,339	19,120
Native father and foreign mother,	1,142	1,059	1,030	1,115	1,316	1,428	1,535	1,613	1,787	1,898
Foreign father and native mother,	1,154	1,085	1,209	1,291	1,482	1,659	1,800	1,945	2,256	2,516
Not stated,	615	564	491	437	284	368	493	254	314	460

Number of Births, &c. — Concluded.

	1872.	1873.	1874.	1775.	1876.	1877.	1878.	1879.	1880.	1881.
Totals,	43,235	44,481	45,631	43,996	42,149	41,850	41,238	40,295	44,217	45,220
Males,	22,140	22,974	23,657	22,457	21,705	21,466	21,199	20,658	22,667	23,014
Females,	21,066	21,485	21,958	21,513	20,410	20,375	20,022	19,623	21,396	22,069
Unknown,	29	22	16	26	34	9	17	14	154	137
PARENTAGE.										
Native,	16,922	17,647	17,508	17,314	16,790	16,897	16,970	16,768	18,130	18,218
Foreign,	21,112	21,293	21,807	20,289	18,590	18,071	17,105	16,298	17,651	18,169
Native father and foreign mother,	2,099	2,139	2,354	2,418	2,448	2,502	2,637	2,723	3,141	3,267
Foreign father and native mother,	2,765	3,062	3,354	3,411	3,485	3,572	3,680	3,665	4,044	4,119
Not stated,	337	340	608	564	836	808	846	831	1,251	1,447

Plural Births. — Three hundred and ninety-eight women gave birth, in 1881, to 805 living children. There were 389 twin births and nine cases of triplets. The percentages are found to vary somewhat from year to year, within moderate limits; and the proportion among the native population is uniformly less than with foreigners. The parentage by counties is found in Table 13: the variations for a period of years in Tables 17 and 18.

TABLE 17. — *Parentage of Plural Births, — Eighteen Years.*

YEARS.	Totals.	NATIVE-BORN.		FOREIGN-BORN.		MIXED.		PARENTAGE NOT STATED.	
		Nos.	Percentages.	Nos.	Percentages.	Nos.	Percentages.	Nos.	Percentages.
1864, . .	597	239	40·0	324	54·3	34	5·7	–	–
1865, . .	591	251	42·4	286	48·4	50	8·5	4	0·7
1866, . .	708	295	41·7	347	49·0	64	9·0	2	0·3
1867, . .	681	292	42·9	339	49·8	48	7·0	2	0·3
1868, . .	722	305	42·3	343	47·5	66	9·1	8	1·0
1869, . .	696	288	41·4	320	46·0	86	12·3	2	0·3
1870, . .	697	302	43·3	333	47·8	62	8·9	–	–
1871, . .	739	222	30·0	407	55·1	104	14·1	6	0·8
1872, . .	759	276	36·4	416	54·8	67	8·8	–	–
1873, . .	832	326	39·2	417	50·1	89	10·7	–	–
1874, . .	812	267	32·9	437	53·8	102	12·6	6	0·7
1875, . .	769	277	36·0	418	54·4	72	9·4	2	0·2
1876, . .	702	252	35·9	342	48·7	106	15·1	2	0·3
1877, . .	815	304	37·3	416	51·0	95	11·7	–	–
1878, . .	815	343	42·1	358	43·9	112	13·7	2	0·3
1879, . .	709	276	38·9	328	46·3	103	14·5	2	0·3
1880, . .	771	283	36·7	362	47·0	122	15·8	4	0·5
1881, . .	805	296	36·8	378	46·9	123	15·3	8	1·0

TABLE 18. — *Plural Births, — Eighteen Years.*

YEARS.	Cases of Twins.	Cases of Triplets.	No. of Living Births to One Case of Twins.	No. of Living Births to One Case of Triplets.
1864,	294	3	104	10,149
1865,	288	5	96	6,050
1866,	351	2	105	16,865
1867,	333	5	103	7,012
1868,	352	6	103	6,032
1869,	339	6	107	6,023
1870,	344	3	111	12,753
1871,	362	5	109	7,958
1872,	375	3	115	14,412
1873,	407	6	109	7,603
1874,	400	4	114	11,408
1875,	380	3	116	14,665
1876,	345	4	122	10,537
1877,	398	5	105	8,370
1878,	397	7	104	5,891
1879,	353	1	114	40,295
1880,	381	3	116	14,739
1881,	389	9	116	5,024

Illegitimate Births. — Eight hundred and one illegitimate births, the largest number ever recorded in the State, and reported in 1881, the increase in twenty years being very striking.

TABLE 19. — *Illegitimate Births registered in Twenty Years.*

YEARS.	CHILDREN BORN OUT OF WEDLOCK.		YEARS.	CHILDREN BORN OUT OF WEDLOCK.	
	Numbers.	To every 1,000 Births.		Numbers.	To every 1,000 Births.
1862,	247	7·6	1872,	303	7·0
1863,	277	9·1	1873,	587	13·2
1864,	285	9·3	1874,	648	14·2
1865,	271	8·9	1875,	632	14·4
1866,	281	8·2	1876,	713	16·9
1867,	292	8·3	1877,	697	16·6
1868,	366	10·1	1878,	640	15·5
1869,	286	7·9	1879,	716	17·8
1870,	285	7.4	1880,	778	17·6
1871,	432	10·9	1881,	801	17·7

Of the mothers of the illegitimate children, the percentage of natives increases in 1881 to 60·8. Of the 801 illegitimate births, 391 were males, 404 females, and in six the sex was not reported. In Suffolk County, the greatest proportion occur, a large number of mothers coming from a distance for their confinement.

TABLE 20.—ILLEGITIMATE BIRTHS.—*Nativity of Mothers,—18 Years.*

YEARS.	Total.	NATIVE.		FOREIGN.		NOT STATED.	
		Numbers.	Percentages.	Numbers.	Percentages.	Numbers.	Percentages.
1864, . .	**285**	160	56·2	109	38·2	16	5·6
1865, . .	**271**	145	53·5	116	42·8	10	3·7
1866, . .	**281**	152	54·1	123	43·7	6	2·2
1867, . .	**292**	167	57·2	119	40·7	6	2·1
1868, . .	**366**	191	52·2	148	40·4	27	7·4
1869, . .	**286**	153	53·4	116	40·6	17	6·0
1870, . .	**285**	154	54·0	111	39·0	20	7·0
1871, . .	**432**	228	52·8	164	38·0	40	9·2
1872, . .	**303**	165	54·5	121	39·9	17	5·6
1873, . .	**587**	306	52·1	269	45·8	12	2·1
1874, . .	**648**	326	50·3	303	46·8	19	2·9
1875, . .	**632**	250	39·6	354	56·0	28	4·4
1876, . .	**713**	377	52·9	270	37·9	66	9·2
1877, . .	**697**	378	54·2	292	41·9	27	3·9
1878, . .	**640**	353	55·2	206	32·2	81	12·6
1879, . .	**716**	429	59·9	225	31·4	62	8·7
1880, . .	**778**	398	51·2	311	39·9	69	8·8
1881, . .	**801**	487	60·8	266	33·2	48	6·0

Still-Born. — There were 1,466 still births reported: 794 males, 585 females, 87 of sex unknown.

MARRIAGES.

Sixteen thousand seven hundred and sixty-eight (16,768) marriages were reported in 1881, still showing an improvement over the previous year, as has been the case since 1875, but with a marriage-rate much lower than the average for twenty-seven years.

The marriage-rate was 17·96, or 8·98 marriages to 1,000 of the estimated population, being 1·14 less than the average since 1855, the fluctuations from year to year depending somewhat upon the prosperity of the country for the time being.

TABLE 21.—*Marriage-Rates, 1855–1881.*

YEARS.	Marriages.	Persons Married to 1,000 Living.	Number Living to One Marriage.	YEARS.	Marriages.	Persons Married to 1,000 Living.	Number Living to One Marriage.
1855, .	12,329	21·77	92	1869, .	14,826	20·92	96
1856, .	12,265	21·30	94	1870, .	14,721	20·20	99
1857, .	11,739	20·05	100	1871, .	15,746	21·07	95
1858, .	10,527	17·68	113	1872, .	16,142	21·07	95
1859, .	11,475	18·96	106	1873, .	16,437	20·92	96
1860, .	12,404	20·15	99	1874, .	15,564	19·32	103
1861, .	10,972	17·72	113	1875, .	13,663	16·54	121
1862, .	11,014	17·69	113	1876, .	12,749	15·43	129
1863, .	10,873	17·36	115	1877, .	12,758	15·40	130
1864, .	12,513	19·87	101	1878, .	12,893	15·47	129
1865, .	13,051	20·60	97	1879, .	13,802	16·08	124
1866, .	14.428	22·15	90	1880, .	15,538	17·42	114
1867, .	14,451	21·57	93	1881, .	16,768	-	111
1868, .	13,856	20·11	99	Av'ge, .	-	19·10	-

County Marriage Rates. — In Dukes and Nantucket and Essex counties alone the number of marriages is less than for the previous year.

Table 22. — *Marriages by Counties, 1876–1881.*

COUNTIES.	1881.	1880.	1879.	1878.	1877.	1876.
Barnstable, . .	240	224	237	247	254	265
Berkshire, . .	553	497	465	466	440	399
Bristol, . . .	1,398	1,160	1,027	1,008	1,083	1,076
Dukes, . . .	23	38	33	29	35	31
Essex, . . .	2,319	2,367	2,031	1,814	1,888	1,795
Franklin, . .	320	306	265	246	201	246
Hampden, . .	1,076	968	848	751	782	809
Hampshire, . .	398	383	378	337	300	330
Middlesex, . .	3,001	2,664	2,396	2,147	2,245	2,172
Nantucket, . .	24	27	28	18	32	24
Norfolk, . .	744	697	702	618	566	607
Plymouth, . .	646	584	525	510	497	518
Suffolk, . . .	4,045	3,732	3,224	3,065	2,945	3,023
Worcester, . .	1,981	1,891	1,643	1,637	1,490	1,454
Whole State, .	16,768	15,538	13,802	12,893	12,758	12,749

The rate of marriages to 1,000 of the population indicates a great preponderance in favor of the larger towns where there are the greatest extremes of prosperity and reckless poverty. There is probably less accuracy in returning the marriages than is the case with births and deaths, and a certain amount of the differences in years and between towns must be accounted for in that way. It can hardly be, for instance, that all the marriages in Somerville were recorded.

TABLE 23. — *Marriage-Rates and Marriages according to Population.*

CITIES.	Population by Census of 1880.	MARRIAGE-RATES.				MARRIAGES.	
		1865.	1870.	1875.	1880.	1880.	1881.
Boston, ...	362,839	14 17	13·33	9·68	9·61	3,488	3,813
Lowell, ...	59,475	13·19	12·83	10·26	12·68	754	802
Worcester, ...	58,291	10·81	11·97	8·45	9 09	530	556
Cambridge, ...	52,669	10 44	10·07	8·24	7·38	389	490
Fall River, ...	48,961	11·95	8·36	9·79	9·58	469	557
Lawrence, ...	39,151	14·88	13 27	10·89	11·21	439	410
Lynn, ...	38,274	9·61	12 57	8·71	12·12	464	454
Springfield, ...	33,340	10·44	11·04	9·69	9 93	331	334
Salem, ...	27,563	10·41	8·41	6 78	8·27	228	214
New Bedford, ...	26,875	13·14	11·77	10·54	9 71	261	263
Somerville, ...	24,933	4·81	5·51	5·90	7·66	191	191
Chelsea, ...	21,782	12·42	10·45	8·73	10·42	227	214
Taunton, ...	21,213	9·80	9·44	7·34	7·12	151	217
Gloucester, ...	19,329	12·73	13 58	9·25	8·22	159	174
Holyoke, ...	21,915	24·43	14·53	13·10	11·54	253	319
Newton, ...	16,995	6·34	8·50	6·90	7·65	130	131
The 16 cities, ...	873,605	12·58	11·17	9·31	9·69	8,464	9,139
The rest of the State, . . .	909,480	8·08	9·30	7·28	7·77	7,074	7,629
The whole State, ...	1,783,085	10·30	10·10	-	8·72	15,538	16,768
3 towns of popul. 50,000 to 60,000,	170,435	-	-	-	9·82	1,673	1,848
1 town " 40,000 to 50,000,	48,961	-	-	-	9 58	469	557
3 towns " 30,000 to 40,000,	110,765	-	-	-	11·14	1,234	1,198
6 " " 20,000 to 30,000,	144,251	-	-	-	9·09	1,311	1,418
17 " " 10,000 to 20,000,	218,422	-	-	-	8·40	1,834	2,154
26 " " 5,000 to 10,000,	175,571	-	-	-	8 00	1,405	1,552
28 " " 4,000 to 5,000,	124,359	-	-	-	7·61	946	1,003
32 " " 3,000 to 4,000,	113,509	-	-	-	7 63	866	874
53 " " 2,000 to 3,000,	127,201	-	-	-	7·63	971	937
92 " " 1,000 to 2,000,	132,469	-	-	-	7·00	927	1,026
83 " " less than 1,000,	54,303	-	-	-	7 62	414	388

Seasons. — November, as usual, is the month of the most marriages, and March that of the least, as is the rule.

TABLE 24. — *Marriages by Months and Quarters, 1881.*

MONTHS.	Marriages registered in each Month.	Marriages registered in each Quarter.	Quarterly Percentage of Total Marriages.
January,	1,420	3,481	20·77
February,	1,273		
March,	788		
April,	1,212	4,294	25·62
May,	1,438		
June,	1,644		
July,	1,144	3,716	22·17
August,	1,101		
September,	1,471		
October,	1,745	5,271	31·44
November,	2,092		
December,	1,434		
Unknown,	6	–	
The four quarters,	16,762	–	100·00

In six marriages, the month of the ceremony was not recorded, in 1881. The percentages for the various seasons of the year are as usual.

TABLE 25. — *Marriages given Quarterly for Ten Years.*

YEARS.	1ST QUARTER.		2D QUARTER.		3D QUARTER.		4TH QUARTER.	
	Nos.	Percentages.	Nos.	Percentages.	Nos.	Percentages.	Nos.	Percentages.
1872,	3,423	21·21	4,157	25·75	3,711	22·99	4,851	30·05
1873,	3,600	21·90	4,269	25·97	3,738	22·74	4,830	29·39
1874,	3,303	21·22	4,052	26·03	3,466	22·27	5,743	30·48
1875,	2,918	21·36	3,583	26·22	3,193	23·37	3,969	29·05
1876,	2,850	22·35	3,201	25·11	2,811	22·05	3,887	30·49
1877,	2,590	20·32	3,337	26·18	2,866	22·49	3,952	31·01
1878,	2,953	22·95	3,229	25·10	2,808	21·83	3,876	30·12
1879,	2,921	21·18	3,445	24·98	2,948	21·38	4,476	32·46
1880,	3,254	21·00	4,019	25·82	3,442	22·20	4,810	30·98
1881,	3,481	20·77	4,294	25·62	3,716	22·17	5,271	31·44
Average,	3,129	21·43	3,759	25·68	3,270	22·35	4,566	30·54

TABLE 26.—*Ages at Marriage of 16,728 Men and of 16,716 Women.*

	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 to 75.	75 to 80.	Over 80.	Unknown.
Men, . .	337	6,195	5,459	2,166	1,080	530	331	223	175	102	74	35	17	4	40
Women, . .	2,821	7,715	3,695	1,172	621	319	173	88	54	34	20	4	–	–	52

Ages at Marriage of 14,152 Bachelors and of 15,137 Maids.

	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 to 75.	75 to 80.	Over 80.	Unknown.
Bachelors, .	337	6,110	5,139	1,707	586	151	66	35	9	7	3	2	–	–	31
Maids, . .	2,813	7,552	3,368	844	339	123	61	23	7	5	2	–	–	–	40

Ages at Marriage of 2,572 Widowers and of 1,575 Widows.

	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 to 75.	75 to 80.	Over 80.	Unknown.
Widowers, .	–	84	319	457	494	379	265	188	166	95	71	33	17	4	3
Widows, .	8	160	326	328	282	196	112	65	47	29	18	4	–	–	6

The approximate average age* of 16,728 men married in 1881 was	28·8
16,716 women married in 1881 was	25·1
14,152 men marrying for the first time in 1881 was	26·5
15,137 women marrying for the first time in 1881 was . . .	23·9

* Calculated from the figures above.

TABLE 27.—*Average Ages at Marriage, 1871–1881.*

YEARS.	Average Age of all Bridegrooms.	Average Age of all Brides.	Average Age of Men marrying for the First Time.	Average Age of Women marrying for the First Time.
1871, . . .	28·6	24·6	26·3	23·5
1872, . . .	28·6	24·7	26·3	23·4
1873, . . .	28·7	24·8	26·3	23·5
1874, . . .	28·8	25·3	26·2	23·6
1875, . . .	28·9	25·0	26·3	23·6
1876, . . .	29·2	25·3	26·5	23·7
1877, . . .	29·2	25·2	26·4	23·8
1878, . . .	29·2	25·0	26·5	23·8
1879, . . .	29·2	25·2	26·7	23·9
1880, . . .	28·9	25·1	26·5	23·8
1881, . . .	28·8	25·1	26·5	23·9

In the preceding two tables, the average ages at marriage are calculated from the figures in Table 26, by assuming that all under 20 were 17½ years old, that all between 20 and 25 were 22½, and so on.

In 1881 there were 1,221 more first marriages and 8 fewer second marriages than in 1880. There were 1,062 more first marriages and 160 more second marriages of men.

Thirteen thousand four hundred and ninety bachelors married maids during the year, and 693 married widows; 1,687 widowers married maids, and 807 widowers married widows. There were 2,575 widowers married, and 1,581 widows.

TABLE 28.—*Social or Conjugal Condition of Persons Married, 1881.*

MALES.	Whole No. of Marriages.	FEMALES.				
Number of the Marriage.		First Marriage.	Second Marriage.	Third Marriage.	Fourth Marriage.	Unknown.
Whole number, .	16,768	15,177	1,479	96	6	10
First marriage, .	14,183	13,490	672	21	–	–
Second marriage, .	2,347	1,581	702	58	6	–
Third marriage, .	209	99	94	16	–	–
Fourth marriage, .	17	7	9	1	–	–
Fifth marriage, .	2	–	2	–	–	–
Unknown, . .	10	–	–	–	–	10

The percentages of first and subsequent marriages, as shown by Table 29, are quite uniform from year to year.

TABLE 29. — *Percentages of First and Subsequent Marriages, 1871–1881.*

		First Marriage.	Second Marriage.	Third Marriage.	Fourth Marriage.	Fifth Marriage.	Sixth Marriage.	Not stated.
1871	Males, .	84·21	14·14	1·39	·13	·01	-	·11
	Females, .	89·37	10·07	·43	·01	-	-	·11
1872	Males, .	84·96	13·39	1·46	·06	·01	-	·12
	Females, .	89·15	10·27	·45	·01	-	-	·12
1873	Males, .	84·48	14·08	1·23	·08	·01	·01	·11
	Females, .	89·30	9·25	1·33	·01	-	-	·11
1874	Males, .	83·88	14·46	1·47	·09	·01	-	·09
	Females, .	89·22	10·18	·50	·01	-	-	·09
1875	Males, .	83·03	14·90	1·75	·12	·05	-	·15
	Females, .	88·66	10·48	·68	·03	-	-	·15
1876	Males, .	82·28	15·92	1·55	·12	·02	-	·11
	Females, .	88·06	11·28	·51	·03	·01	-	·11
1877	Males, .	82·49	15·43	1·73	·17	·02	-	·16
	Females, .	88·66	10·60	·55	·03	-	-	·16
1878	Males. .	82·38	15·93	1·31	·14	·03	-	·21
	Females, .	88·63	10·57	·56	·03	-	-	·21
1879	Males, .	83·02	15·51	1·26	·10	·02	·01	·08
	Females, .	89·62	9·78	·46	·06	-	-	·08
1880	Males, .	84·44	14·07	1·25	·12	-	-	·11
	Females, .	89·81	9·57	·47	·02	-	-	·12
1881	Males, .	84·58	14·00	1·25	·10	·01	-	·06
	Females, .	90·51	8·82	·57	·04	-	-	·06

TABLE 30. — *Certain Marriages, 1881.*

First Marriage of both Parties.		
Ages.		No. of Couples.
Ma.	Fe.	
13	16	1
17	14	1
17	15	2
17	16	2
17	17	6
17	18	3
17	19	4
18	16	5
18	17	14
18	18	21
18	19	12
18	20	3
18	21	10
18	22	5
19	12	1
19	14	2
19	15	3
19	16	9
19	17	25
19	18	49
19	19	53
19	20	28
19	21	17
19	22	21
20	14	2
20	15	9
20	16	17
20	17	38
20	18	80
20	19	79
20	20	95
20	21	61
20	22	31
20	23	16
21	14	2
21	15	7
21	16	23
21	17	48
22	15	2
22	16	20
22	17	46
23	15	7
23	17	40
24	16	15
24	17	23
24	45	1
25	16	10
25	17	25
26	15	1
26	16	9
26	17	20
27	15	1
27	16	9
27	17	12
28	15	1
28	16	1
28	17	14
29	15	2
29	16	4
29	17	5
30	15	2

First Marriage of both Parties — Con.		
Ages.		No. of Couples.
Ma.	Fe.	
31	17	1
32	17	6
33	16	1
34	16	2
45	18	1
55	20	1
62	18	1
66	17	1
72	61	1
73	63	1
88	66	1

1st Male. 2d Female.	
Ages.	
Male.	Female.
18	33
19	22
19	26
20	23
20	26
20	28
24	18
26	19
27	50
30	60
34	53

1st Male. 3d Female.	
Ages.	
Male.	Female.
25	28
29	46
39	30
39	33
55	35

2d Male. 1st Female.	
Ages.	
Male.	Female.
23	14
25	15
28	13
30	16
32	15
39	16
51	18
58	19
63	19
66	17
72	22
72	65
76	57

2d of Both.	
Ages.	
Male.	Female.
21	17
38	19
56	25
58	26

2d Male. 3d Female.	
Ages.	
Male.	Female.
33	52
39	30
50	36
81	64

2d Male. 4th Female.	
Ages.	
Male.	Female.
39	48
45	44
60	30
79	68

3d Male. 1st Female.	
Ages.	
Male.	Female.
25	21
42	17
56	26
60	30
63	33
71	42

3d Male. 2d Female.	
Ages.	
Male.	Female.
33	25
55	26
62	23
75	30

3d of Both.	
Ages.	
Male.	Female.
40	40
43	39
57	47
69	49
75	73
84	50

4th Male. 1st Female.	
Ages.	
Male.	Female.
42	25
59	30
67	41
78	53

4th Male. 2d Female.	
Ages.	
Male.	Female.
35	22
54	40
69	33

4th Male. 3d Female.	
Ages.	
Male.	Female.
70	55

5th Male. 2d Female.	
Ages.	
Male.	Female.
39	29
72	51

TABLE 31. — *Certain Marriages, 1881.*

		AGES OF FEMALES.																				
		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	32	33
	1,173	1	1	8	39	148	341	153	148	126	88	58	27	14	6	7	1	2	1	2	1	1
AGES OF MALES. 18	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
17	18	–	–	1	2	2	6	3	4	–	–	–	–	–	–	–	–	–	–	–	–	–
18	77	–	–	–	–	5	14	21	12	3	10	5	4	2	–	–	–	–	–	–	–	1
19	223	1	–	2	3	9	25	49	53	28	17	22	6	4	–	2	–	1	1	–	–	–
20	453	–	–	2	9	17	38	80	79	95	61	31	17	8	6	5	1	1	–	2	1	–
21	80	–	–	2	7	23	48	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
22	68	–	–	–	2	20	46	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
23	63	–	–	1	7	15	40	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24	38	–	–	–	–	15	23	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
25	37	–	–	–	1	11	25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26	30	–	–	–	1	9	20	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27	22	–	–	–	1	9	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	17	–	1	–	1	1	14	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

AGES OF MALES.																						
29	12	-	-	-	2	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9	-	-	-	2	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	4	-	-	-	-	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	8	-	-	-	1	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	4	-	-	-	-	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	2	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 32. — *Marriages according to Nativity. — Percentages.*

YEARS.	Both Parties Native-Born.	Both Parties Foreign-Born.	Native-Born Groom and Foreign-Born Bride.	Foreign-Born Groom and Native-Born Bride.	Not stated.
1863, . . .	61·34	27·85	4·44	5·14	1·23
1864, . . .	60·53	28·32	4.52	6·08	·55
1865, . . .	59·58	29·29	4·49	6·16	·48
1866, . . .	58·81	27·84	5·32	6 51	1·52
1867, . . .	58·39	28·96	5·40	6·31	·94
1868, . . .	58·10	29·08	5 41	6·94	·47
1869, . . .	57·48	29·26	5·24	7·58	·44
1870, . . .	56.79	29·01	6·12	7·98	·10
1871, . . .	55·71	29·37	6·24	8·50	·18
1872, . . .	53·89	30·76	6·85	8.42	·08
1873, . . .	53 26	31·12	6·56	8·99	·07
1874, . . .	53·64	29·29	6·88	9·08	·15
1875, . . .	57.03	27·09	7·05	8·82	·01
1876, . . .	58·43	25·52	7·55	8·32	·18
1877, . . .	60·00	22·76	8·00	9·11	·13
1878, . . .	61·38	21·52	8·34	8·64	·12
1879, . . .	62.19	20·23	8·29	9·23	·06
1880, . . .	60·15	21·77	8·97	9·09	·02
1881, . . .	58·12	23·36	9·97	8·52	·03

TABLE 33. — *Proportion of Native to Foreign-Born Persons Married.*

YEARS.	Native-Born.	Foreign-Born.	YEARS.	Native-Born.	Foreign-Born.
1864, . .	66·18	33·82	1873, . .	61·08	38·92
1865, . .	65·22	34·78	1874, . .	62·67	37·33
1866, . .	65·73	34·27	1875, . .	64·96	35·04
1867, . .	64·85	35 15	1876, . .	66·49	33·51
1868, . .	64·58	35·42	1877, . .	68·64	31·36
1869, . .	64·17	35·83	1878, . .	69·95	30·05
1870, . .	63·89	36 11	1879, . .	70·99	29·01
1871, . .	63·19	36·81	1880, . .	69·19	30·81
1872, . .	61·57	38·43	1881, . .	67·38	32 62

DEATHS.

The number of deaths in 1881 exceeded the mortality of the previous year by 1,166 deaths, and was the greatest recorded in the State.

The death-rate per 1,000 of the living population was slightly (·27) less than for the previous year, but ·30 per 1,000 greater than the average of the previous five years, and ·26 greater than the average for the preceding thirty years. It was exceeded only nine times since 1850.

The annual death-rate depends upon the number of marriages and the number of infants in the community, as well as upon sanitary conditions. The excess of mortality is among children under one year of age. In 1881, the deaths under one year of age exceeded those of 1880 by 199, whereas there were 1,003 more births in 1881 than in 1880.

The year was one, therefore, of about average health. The threatened epidemic of small-pox was warded off by careful vaccination and revaccination, and the other infectious diseases were not in excess of the previous few years.

TABLE 34.—*Deaths and Death-Rates, 1851–1881.*

YEARS.	Deaths Registered.	Deaths to 1,000 Persons Living.	Annual Mean of Quinquennial Periods.
1851,	18,934	18·90	18·71
1852,	18,482	17·99	
1853,	20,301	18·88	
1854,	21,414	19·41	
1855,	20,798	18·37	
1856,	20,734	18·01	17·94
1857,	21,280	18·17	
1858,	20,776	17·45	
1859,	20,976	17·33	
1860,	23,068	18·74	
1861,	24,085	19·46	20·70
1862,	22,974	18·45	
1863,	27,751	22·16	
1864,	28,723	22·80	
1865,	26,152	20·64	
1866,	23,637	18·14	18·17
1867,	22,772	16·99	
1868,	25,603	18·58	
1869,	26,054	18·38	
1870,	27,329	18·75	
1871,	27,943	18·70	20·82
1872,	35,019	22·85	
1873,	33,912	21·58	
1874,	31,887	19·79	
1875,	34,978	21·17	
1876,	33,186	20·09	19·22
1877,	31,342	18·91	
1878,	31,303	18·78	
1879,	31,801	18·52	
1880,	35,292	19·79	
1881,	36,458	–	–
Thirty years' average,	–	19·26	19·26

TABLE 35. — *Death-Rates by Counties, 1865–1880, and Deaths 1880–1881.*

	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.	STATE.
Death-Rates, 1865, .	17·8	17·9	20·4	22·1	21·7	18·4	19·0	20·9	19·1	19·1	22·0	23·3	21·2	20·6
" " 1866, .	14·5	15·7	17·4	17·8	17·7	15·8	18·2	16·5	18·9	17·3	16·1	21·3	17·5	18·1
" " 1867, .	14·0	14·7	16·6	16·6	15·7	14·8	17·3	14·0	17·3	17·4	14·7	20·3	16·7	16·9
" " 1868, .	14·7	15·7	19·4	17·5	16·9	14·7	19·5	14·8	19·2	14·5	17·8	23·8	17·4	18·5
" " 1869, .	16·2	15·2	17·6	18·5	17·9	16·2	18·2	15·0	18·7	16·4	16·8	22·1	16·9	18·3
" " 1870, .	14·5	15·4	18·1	20·6	17·4	16·9	19·1	17·1	18·9	15·6	16·2	23·7	17·9	18·7
" " 1871, .	16·7	12·8	15·7	20·4	18·6	18·0	20·1	15·4	19·6	15·8	16·7	21·7	19·2	18·7
" " 1872, .	17·6	18·6	22·3	22·2	22·1	16·2	24·0	20·9	23·4	19·8	18·3	27·8	22·2	22·8
" " 1873, .	17·7	16·6	25·3	21·8	20·6	17·1	21·8	17·1	23·3	18·9	18·2	25·7	18·0	21·5
" " 1874, .	16·8	17·5	20·1	23·8	18·9	18·0	19·3	22·8	20·1	16·8	16·4	23·8	17·5	19·7
" " 1875, .	19·1	18·9	20·7	21·2	21·1	19·8	20·4	20·4	20·9	17·4	18·6	25·7	18·4	21·1
" " 1876, .	18·2	16·3	20·1	23·5	21·0	15·3	19·0	17·9	19·8	16·8	19·1	23·6	17·9	20·0
" " 1877, .	16·5	15·1	19·7	32·0	20·1	15·1	17·2	17·0	18·8	16·6	16·8	20·8	17·8	18·9
" " 1878, .	18·7	14·3	21·0	29·1	19·2	14·3	17·7	16·4	19·0	15·4	15·8	21·9	16·4	18·7
" " 1879, .	17·7	15·0	20·4	22·7	20·1	16·0	19·6	16·9	17·5	16·0	16·5	24·1	16·1	18·5
" " 1880, .	19·0	16·4	21·4	21·8	20·2	16·1	19·9	18·1	18·1	16·1	16·8	23·4	18·9	19·7
Deaths 1880, . .	607	1,130	2,983	175	4,949	579	2,071	854	5,769	1,554	1,243	9,084	4,294	35,292
" 1881, . .	523	1,305	3,015	208	4,778	605	2,107	954	6,181	1,645	1,370	9,578	4,189	36,458

Table 36.—*Death-Rates and Deaths in Six Geographical Divisions.*[*]

COUNTIES.	Population. 1880.	Death-Rate. 1860.	Death-Rate. 1865.	Death-Rate. 1870.	Death-Rate. 1875.	Death-Rate. 1880.	Deaths. 1880.	Deaths. 1881.
1. Metropolitan (City of Boston, the greater part of Suffolk County), .	362,839	24·7	23·6	24·3	26·1	23·7	8,594	9,075
2. North-eastern (Essex, part of Suffolk and part of Middlesex County), .	556,883	18·1	20·4	18·3	21·0	19·2	10,717	10,942
3. South-eastern (Dukes and Nantucket, Barnstable, Plymouth, Bristol, and Norfolk), ...	349,489	16·2	20·0	16·6	19·2	18·8	6,562	6,761
4. Midland (Worcester and part of Middlesex), ...	257,467	17·6	20·7	17·8	18·5	18·6	4,785	4,709
5. Valley (Franklin, Hampden and Hampshire), ...	187,375	17·2	19·4	18·1	20·3	18·7	3,504	3,666
6. Western (Berkshire), ...	69,032	14·5	17·9	15·4	18·9	16·4	1,130	1,305
Whole State, ...	1,783,085	18·7	20·6	18·7	21·2	19·8	35,292	36,458

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[*] Chelsea, Revere, and Winthrop, of Suffolk County, are in the *North-eastern Division*. Ashby, Townsend, Pepperell, Shirley, Groton, Dunstable, Tyngsborough, Westford, Littleton, Boxborough, Acton, Stow, Marlborough, and Hopkinton, of Middlesex County, are in the *Midland Division;* the rest of Middlesex County is in the *North-eastern Division.*

TABLE 37.—*Death-Rates and Deaths according to Population.*

CITIES.	Population by Census of 1880.	DEATH-RATES.				Deaths. 1880.	Deaths. 1881.
		1865.	1870.	1875.	1880.		
Boston,	362,839	23·6	24·3	26·2	23·7	8,594	9,075
Lowell,	59,475	18·6	23·2	20·5	22·0	1,312	1,287
Worcester,	58,291	24·9	21·8	20·9	20·9	1,218	1,150
Cambridge,	52,669	18·9	20·4	23·3	18·0	956	1,143
Fall River,	48,961	21·5	20·8	24·0	26·3	1,290	1,251
Lawrence,	39,151	25·7	17·2	26·0	21·6	849	797
Lynn,	38,274	22·1	17·2	19·2	19·5	747	757
Springfield,	33,340	16·0	18·5	20·9	19·0	634	636
Salem,	27,563	21·1	20·6	22·9	23·2	640	609
New Bedford,	26,875	21·2	17·8	21·7	21·9	589	540
Somerville,	24,933	20·4	17·6	22·9	17·0	424	460
Chelsea,	21,782	20·8	16·8	20·1	20·5	448	438
Taunton,	21,213	21·5	19·8	19·8	18·6	394	478
Gloucester,	19,329	24·5	23·2	28·4	23·2	448	403
Holyoke,	21,915	21·4	27·2	29·3	24·0	527	552
Newton,	16,995	13·9	10·1	13·9	15·8	269	271
The 16 cities,	873,605	22·1	21·6	23·9	22·1	19,339	19,847
The rest of the State,	909,480	19·8	16·6	18·7	18·6	15,953	16,611
The whole State,	1,783,085	20·6	18·7	21·2	19·8	35,292	36,458
3 towns of pop. 50,000 to 60,000	170,435	-	-	-	20·45	3,486	3,580
1 town of pop. 40,000 to 50,000	48,961	-	-	-	26·35	1,290	1,251
3 towns of pop. 30,000 to 40,000	110,765	-	-	-	20·13	2,230	2,190
6 " " 20,000 to 30,000	144,251	-	-	-	20·95	3,022	3,077
17 " " 10,000 to 20,000	218,422	-	-	-	17·88	3,905	4,142
26 " " 5,000 to 10,000	175,571	-	-	-	18·34	3,220	3,167
28 " " 4,000 to 5,000	124,359	-	-	-	17·48	2,174	2,227
32 " " 3,000 to 4,000	113,509	-	-	-	16·90	1,918	1,983
53 " " 2,000 to 3,000	127,201	-	-	-	16·99	2,161	2,270
92 " " 1,000 to 2,000	132 469	-	-	-	16·71	2,214	2,436
83 " " less than 1,000	54,303	-	-	-	19·85	1,078	889

TABLE 38. — *Influence of Seasons on Deaths, 1881.*

	Deaths registered in each Month.	Deaths registered in each Quarter.	Quarterly Percentage of Total Mortality.
January, ...	3,081	9,125	25·03
February, ...	2,905		
March, ...	3,139		
April, ...	3,207	8,546	23·44
May, ...	2,890		
June, ...	2,449		
July, ...	3,033	10,046	27·56
August, ...	3,780		
September, ...	3,233		
October, ...	3,107	8,741	23·98
November, ...	2,682		
December, ...	2,952		
Not stated, ...	–		
The year, ...	36,458	–	–

TABLE 39. — *Percentages of Deaths by Quarters, 1871–1881.*

	PERCENTAGE OF DEATHS FOR QUARTER ENDING WITH			
	March.	June.	September.	December.
1871, ...	23·4	23·0	30·5	23·1
1872, ...	22·1	21·9	33·3	22·7
1873, ...	24·3	22 2	30·8	22·7
1874, ...	22·6	23·4	29·6	24·4
1875, ...	24·7	22·5	29·4	23·4
1876, ...	25·6	22·3	29·4	22·7
1877, ...	24·4	22·2	29·7	23·7
1878, ...	23·8	22·2	28·5	25·5
1879, ...	27·4	23·3	26·2	23·1
1880, ...	23·5	23·4	28·6	24·5
1881, ...	25·0	23·4	27·6	24·0
Average, ...	23·8	22·7	29·4	23·6

Sex. — The deaths of females exceeded those of males in 1881 by 149, a much smaller difference than has obtained since 1874. In 15 deaths the sex was not reported. The ratio of females to males in the population, by the census of 1880, was 107·71. The excess of females over males was 66,205 as compared with 32,301 in 1855.

The death-rate of males, for the five census years, exceeded that of females by 1·2 per 1,000.

TABLE 40. — *Mortality of Males and Females compared.*

	Deaths of Males.	Deaths of Females.	Deaths of Males to 100 Deaths of Females.	Death-Rate of Males.	Death-Rate of Females.
1852–61, ...	104,875	106,020	98·9	-	-
1860, ...	*11,444*	*11,547*	*99·1*	*19·3*	*18·4*
1862–65 (4 years of war), .	54,407	50,994	106·7	-	-
1865, ...	*13,085*	*13,024*	*100·5*	*21·7*	*19·6*
1866, ...	11,601	12,003	96·6	-	-
1867, ...	11,350	11,369	99·8	-	-
1868, ...	12,871	12,695	101·4	-	
1869, ...	12,777	13,231	96·6	-	-
1870, ...	*13,699*	*13,598*	*100·7*	*19·5*	*18·6*
1871, ...	13,985	13,931	100·4	-	-
1872, ...	17,717	17,256	102·7	-	-
1873, ...	17,242	16,642	103·6	-	-
1874, ...	15,912	15,935	99·9	-	-
1875, ...	*17,329*	*17,619*	*98·4*	*21·8*	*20·5*
1876, ...	16,485	16,669	98·8	-	-
1877, ...	15,427	15,894	97·1	-	-
1878, ...	15,284	15,986	95·6	-	-
1879, ...	15,628	16,142	96·8	-	-
1880, ...	*17,426*	*17,852*	*97·6*	*20·3*	*19·3*
1881, ...	18,147	18,296	99·2	-	-

Table 41 shows a great excess in the deaths of males under the age of 5; and of females over 20, but especially between the ages of 20 and 30. About one-fifth of the deaths occur in infancy and not far from one-third under the age of five years.

TABLE 41.—*Deaths at Different Ages, 1881.*

		Under 1 Year.	Under 5 Years.	20 to 30.	All Others.	Totals.
I. Deaths, . .	Males, . .	4,064	6,448	1,687	10,012	18,147
	Females, . .	3,310	5,507	1,961	10,828	18,296
	Totals, . .	7,374	11,955	3,648	20,840	36,443
	Unknown, .	15	15	–	–	15
II. Percentages for each sex, .	Males, . .	22·39	35·53	9·29	55·18	–
	Females, . .	18·09	30·09	10·71	59·20	–
III. Percentages for each period of life, ...		20·23	32·80	10·01	57·19	–
IV. Females to 1,000 males, . .		814	854	1,162	1,081	1,008

The mortality of infants and young children is much lower than the average for ten years, and, considering the birth-rate, is not at all excessive.

TABLE 42.—*Deaths at Different Ages.—Percentages.—Ten Years.*

	Under 1 Year.	Under 5 Years.	20 to 30.	All Others.
1872, ...	23·96	38·75	10·76	50·49
1873, ...	23·33	36·49	10·46	53·05
1874, ...	23·49	36·58	9·88	53·54
1875, ...	22·05	36·76	9·33	53·91
1876, ...	20·19	36·19	9·07	54·74
1877, ...	20·24	35·64	9·47	54·89
1878, ...	19·69	34·50	9·05	56·45
1879, ...	18·41	31·95	9·29	58·76
1880, ...	20·34	34·58	9·27	56·15
1881, ...	20·23	32·80	10·01	57·19
Average, ...	21·19	35·42	9·66	54·92

The percentages for ten years in Table 43 show that in 1881 there was a less high proportion of death among females than for the average of a term of years.

TABLE 43. — *Deaths at Different Ages. — Ten Years, 1872–81.*

		Under 1 Year.	Under 5 Years.	20 to 30.	All Others.	Totals.
I. Deaths, .	Males, .	38,995	63,504	14,544	88,519	166,567
	Females, .	31,838	54,871	17,842	95,549	168,262
	Totals, .	70,833	118,375	32,386	184,068	334,829
	Unknown,	329	337	1	2	340
II. Percentages, each sex, .	Males, .	23·41	38·12	8·73	53·15	–
	Females, .	18·92	32·61	10·60	56·79	–
III. Percentages for each period of life, . . .		21·16	35·35	9·67	54·98	–
IV Females to 1,000 males,		817	864	1,227	1,078	1,010

The deaths under one, in proportion to births, are higher for 1881 than for any of the preceding five years.

TABLE 44. — *Infant Mortality. — Ten Years, 1872–1881.*

	Births.	Deaths under One Year.	Total Deaths.	Deaths under One Year to 100 Births.	Percentage of Deaths under One to Total Deaths.
1872, . . .	43 235	8,390	35,019	19·41	23·95
1873, . . .	44,481	7,911	33,912	17·78	23·32
1874, . . .	45,631	7,489	31,887	16·41	23·48
1875, . . .	43,996	7,712	34,978	17·53	22 04
1876, . . .	42,149	6,700	33,186	15·89	20·18
1877, . . .	41,850	6,343	31,342	15·15	20·23
1878, . . .	41,238	6,189	31,303	15·01	19·77
1879, . . .	40,295	5,805	31,801	14·52	18·41
1880, . . .	44,217	7,190	35,292	16·26	20·34
1881, . . .	45,220	7,389	36,458	16·34	20·27
Average, .	–	–	–	16·43	21·20

TABLE 45. — *Death Rates per 1,000 Living at Specified Ages, 1865–1880; and Deaths, 1880–1881.*

		ALL AGES.	Under 1.	Under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 and over.	Unknown.
Population,	1865,	1,267,031	23,719	133,943	143,391	126,691	117,171	225,566	185,543	142,831	96,446	59,216	26,675	8,316	1,302
"	1866,	1,302,989	25,336	138,246	142,664	130,756	121,794	234,652	190,941	146,598	98,716	60,948	27,645	8,580	-
"	1867,	1,339,968	27,064	142,688	141,910	134,954	126,600	244,116	196,496	150,465	101,041	62,731	28,651	8,854	-
"	1868,	1,377,996	28,909	147,273	141,223	139,249	131,594	253,961	202,213	154,434	103,420	64,567	29,694	9,135	-
"	1869,	1,417,103	30,881	152,005	140,507	143,757	136,787	264,204	208,096	158,508	105,855	66,456	30,775	9,426	-
"	1870,	1,457,351	32,987	156,889	139,796	148,371	142,184	274,859	214,151	162,689	108,348	68,401	31,895	9,727	41
"	1871,	1,494,338	33,191	160,144	144,286	148,369	146,645	281,710	219,264	166,395	111,744	70,433	33,065	9,999	-
"	1872,	1,532,264	33,404	163,467	148,927	148,368	151,247	288,730	224,500	170,185	115,247	72,526	34,279	10,279	-
"	1873,	1,571,152	33,615	166,859	153,704	148,367	155,993	295,926	229,859	174,062	118,861	74,681	35,538	10,567	-
"	1874,	1,611,028	33,827	170,321	158,642	148,366	160,888	303,302	235,367	178,027	122,587	76,901	36,842	10,863	-
"	1875,	1,651,912	34,040	173,855	163,738	148,365	165,936	310,861	240,966	182,823	126,430	79,186	38,283	11,167	10,302
"	1876,	1,651,912	34,040	173,855	163,738	148,365	165,936	310,861	240,966	182,823	126,430	79,186	38,283	11,167	-
"	1877,	1,657,265	34,210	174,116	163,800	148,991	166,015	312,437	242,091	183,816	127,179	79,782	38,573	11,280	-
"	1878,	1,667,200	34,472	174,524	164,389	149,970	166,139	314,900	243,879	185,367	128,350	80,714	39,027	11,456	-
"	1879,	1,717,200	35,817	176,595	167,374	154,982	166,772	327,379	252,788	193,229	134,286	85,438	41,327	12,352	-
"	1880,	1,783,085	37,587	179,307	171,595	161,425	167,595	343,701	264,413	203,515	142,053	91,619	44,337	13,525	-

Death Rates, 1865,	20·64	205·28	68·62	9·63	5·14	9·63	12·58	11·68	11·86	17·49	32·90	70·48	168·23	-
" " 1866,	18·14	186·26	56·09	6·65	4·27	7·65	10·79	11·06	11·39	16·64	31·74	68·94	161·53	-
" " 1867,	16 99	175·99	55·75	6·79	3·51	6·89	9·93	9·66	10·51	15·27	28·39	62·02	162·07	-
" " 1868,	18·58	180·60	63·60	8·10	3·89	6·46	9·65	9·95	11·49	16·05	31·51	70·82	169·56	-
" " 1869,	18·38	173·82	64·95	7·67	3·95	6·85	9·87	10·07	11·31	16·20	31·61	68·07	174·30	-
" " 1870,	18·75	188·13	62·92	5·90	3·74	7·22	10·48	10·62	11·96	16·95	30·08	68·85	170·04	-
" " 1871,	18·70	180·65	59·33	6·49	3·97	7·30	10·04	10·71	12·00	17·21	31·71	70·79	176·11	-
" " 1872,	22·85	251·16	83·03	8·57	4·81	9·27	13·04	12·08	13·29	18·57	34·45	75·73	181·53	-
" " 1873,	21·58	205·59	74·28	8·63	4·96	8·59	11·99	12·22	12·75	18·67	35·26	73·35	171·47	-
" " 1874,	19·79	221·39	68·48	7·94	4·26	7·27	10·38	10·58	12·11	17·88	32·74	70·62	172·78	-
" " 1875,	21·17	226·56	73·96	9·77	4·72	7·73	10·49	11·30	12·97	18·29	34·79	71·11	176·41	-
" " 1876,	20·09	196·82	68 87	11·51	4·63	6·73	9·65	10·39	12·18	17·37	33·55	70·08	174·35	-
" " 1877,	18·91	185·41	64·00	9·81	4·36	7·12	9·50	9·92	11·20	16·11	31·66	71·63	166·04	-
" " 1878,	18·78	179·53	62·00	8·92	4·32	6·32	8·98	9·89	11·16	17·04	31·63	76·25	185·05	-
" " 1879,	18·52	163·47	57·56	8·43	3·97	6·51	9·03	10·06	11·87	17·21	33·08	75·01	174·30	-
" " 1880,	19·79	191·28	68·11	8·52	3·78	6·58	9·51	10·29	11·71	17·86	33·87	73·14	184·02	-
Deaths, . 1880,	**35,292**	**7,190**	**12,213**	**1,463**	**611**	**1,104**	**3,260**	**2,721**	**2,384**	**2,588**	**3,104**	**3,248**	**2,489**	**158**
" . 1881,	**36,458**	**7,389**	**11,970**	**1,500**	**748**	**1,217**	**3,648**	**2,900**	**2,623**	**2,648**	**3,148**	**3,402**	**2,488**	**166**

TABLE 46. — *Average Ages at Death by Counties, 1851–1881.*

YEARS.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
1851–1855 (mean), ...	27·07	30·63	33·07	28·08	37·74	28·14	35·56	28·94	34·32	25·47	28·02	32·68	20·10	29·61
1856–1860, ...	27·72	32·49	32·66	29·18	40·53	27·68	35·26	28·39	34·60	26·57	28·97	31·12	21·83	29·34
1861–1865, ...	28·14	34·23	32·09	29·27	44·45	28·08	37·29	27·37	32·16	27·29	27·63	33·30	23·00	28·81
1866–1870, ...	30·31	40·11	34·43	32·64	50·96	30·35	40·30	28·12	37·21	29·29	31·85	39·18	24·51	31·31
1871–1875, ...	29·34	40·05	33·25	30·22	51·73	30·17	39·56	26·15	34·60	28·26	33·39	39·25	23·68	32·07
1876–1880, ...	31·64	44·37	36·32	30·06	52·62	31·39	43·49	28·66	38·09	30·27	35·82	41·90	26·90	33·81
Average of thirty years, . .	29·04	36·96	33·64	29·91	46·34	29·30	38·58	27·94	35·16	27·86	30·95	36·24	23·34	30·82
1881, ...	32·41	44·88	36·49	31·25	53·04	34·30	43·80	31·00	38·55	31·80	36·45	41·09	27·34	33·07

TABLE 47. — *Aged 100 Years.* — *Died in 1881.*

Date.	NAME.	AGE.		Place of Death.	Birthplace.	Whether previously Married or Single.
		Yrs.	Mos.			
January 1,	Bridget Burns,	104	-	Chelsea,	Ireland,	Married.
" 18,	Frank Brooks,	100	-	Adams,	Foreign,	"
" 18,	Nathan Gould,	100	10	Malden,	Unknown,	"
" 30,	Lucy A. Roberts (maiden n. Saunders),	103	10	Manchester,	"	"
February 1,	Rachel Allen,	103	-	Chester,	Connecticut,	"
March 25,	Annie Plurd,	100	1	North Adams,	Canada,	"
" 29,	Betsey Henderson (maiden name Hall),	101	1	Boston,	New Braintree,	"
April 10,	Polly Sanderson,	100	11	Waltham,	Waltham,	Single
" 14,	Ellen Tobin,	100	-	Lowell,	Ireland,	Married.
May 13,	Nancy Lester,	105	6	Greenfield,	Prescott,	"
June 20,	Mary Callahan,	100	-	Canton,	Ireland,	"
July 22,	Judith Hathaway (maiden n. Thomas),	102	10	Duxbury,	Duxbury,	"
August 19,	Bridget Reese (maiden name Dee),	100	-	Boston,	Ireland,	"
September 19,	Jemima Grover (maiden name Allen),	107	-	Brimfield,	Sturbridge,	"
" 22,	James Barry,	105	-	Chicopee,	Ireland,	"
October 19,	Charlotte Living (maiden n. Delosha),	104	-	West Boylston,	Canada,	"
November 2,	Emma W. Skelton (maiden n. Willard),	103	-	Boston,	Ashburnham,	"
" 13,	Philip Alcombright,	101	6	Williamstown,	Unknown,	"
" 14,	Charlotte Miner,	107	-	Fall River,	Canada,	"
" 21,	John Davis,	109	-	Lanesborough,	New Jersey,	"
December 9,	Noel Lareau,	102	11	Fall River,	Canada,	"

TABLE 48. — *Nativity of those whose Deaths were Registered in 1881.*

COUNTIES.	NATIVE-BORN.		FOREIGN-BORN.		NATIVITY NOT STATED.		TOTALS.	
	Nos.	Percentages.	Nos.	Percentages.	Nos.	Percentages.	Nos.	Percentages.
Barnstable, .	491	93·88	29	5·55	3	·57	523	100·00
Berkshire, . .	1,021	78·24	254	19·46	30	2·30	1,305	100·00
Bristol, . .	2,269	75·26	711	23·58	35	1·16	3,015	100·00
Dukes and Nantucket, . .	196	94·23	9	4·33	3	1·44	208	100·00
Essex, . .	3,765	78·80	975	20·41	38	·79	4,778	100·00
Franklin, . .	549	90·74	47	7·77	9	1·49	605	100·00
Hampden, . .	1,534	72·81	547	25·96	26	1·23	2,107	100·00
Hampshire, .	782	81·97	164	17·19	8	·84	954	100·00
Middlesex, .	4,637	75·02	1,490	24·11	54	·87	6,181	100·00
Norfolk, . .	1,352	82·19	285	17·33	8	·48	1,645	100·00
Plymouth, . .	1,225	89·42	134	9·78	11	·80	1,370	100·00
Suffolk, . .	6,784	70·83	2,731	28·51	63	·66	9,578	100·00
Worcester, .	3,317	79·18	829	19·79	43	1·03	4,189	100·00
State, . .	27,922	76·59	8,205	22·51	331	·90	36,458	100·00

TABLE 49. — *Nativity of Persons Deceased, — Twenty-five Years.*

	TOTAL DEATHS.*	NATIVE-BORN.		FOREIGN-BORN.	
		Nos.	Percentages.	Nos.	Percentages.
1854–59 (annual mean), .	20,996	16,880	83·88	3,246	16·12
1860–65 (annual mean), .	25,459	21,243	84·92	3,772	15·08
1866–70 (annual mean), .	25,079	19,982	80·82	4,745	19·18
1871–75 (annual mean), .	32,747	25,941	80·09	6,584	19·90
1876–80 (annual mean), .	32,585	25,661	79·78	6,502	20·22
1881, ...	36,458	27,922	77·29	8,205	22·71

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* Including those whose nativity was not recorded. In the calculations of percentages, the ratios are not given to the *total* reported deaths, but only to the total of those cases where the nativity was stated.

CAUSES OF DEATH.

Of the 36,458 deaths reported in the State in 1881, the causes of death failed to be certified in 665 as compared with 745 in 1880, or in 1·82 per cent. of the deaths in 1881 against 2·13 per cent. in 1880. There were 35,793 deaths in which the facts required by law were reported, the number defective in that respect having diminished almost steadily from 1,464 in 1868.

Of the 665 unspecified causes of death in 1881, there were 106 from hemorrhage, 61 from tumor, 20 from inflammation, and 469 in which no statement was made as to the cause of death, or it was reported as unknown.

The year 1881 has been one of moderate health, the deaths by classes being distributed as follows: —

TABLE 50. — *Causes of Death by Classes, 1881.*

CLASSES.	Deaths, 1881.	Percentages.
Zymotic diseases,	8,240	22·60
Constitutional diseases,	8,693	23·84
Local diseases,	13,660	37·47
Developmental diseases,	3,774*	10·35
Violent deaths,	1,426	3·91
Unspecified,	665	1·82
Totals,	36,458	–

* Excluding 1,466 still-born.

The distribution of diseases by classes shows a decrease in zymotic and increase in local diseases as compared with 1880, but otherwise little change.

From the "zymotic" or infection diseases, the proportion for 1881 was 1·5 less than for 1880 and 3·8 less than the average for ten years. From constitutional diseases it was very near the average and ·6 more than in 1880. The local diseases were 5·1 higher than the average and only ·2 higher than for the previous year. Developmental diseases, although 1·4 less than the ten years average, were ·5 higher than for 1880. Violent deaths were ·2 below the average and ·2 below the proportion of the previous year.

TABLE 51.—*Percentage of Causes of Death by Classes,*—Ten Years.*

YEARS.	CLASSES.				
	Zymotic.	Constitutional.	Local.	Developmental.	Violent Deaths.
1872,	30·9	23·1	27·7	14·6	3·7
1873,	28·7	23·8	27·9	15·2	4·4
1874,	25·7	23·8	30·4	15·7	4·4
1875,	28·6	24·3	31·8	11·2	4·1
1876,	29·4	23·9	31·3	11·0	4·4
1877,	28·6	25·1	31·7	10·6	4·0
1878,	25·2	25·2	34·7	11·0	3·9
1879,	23·3	25·0	37·1	10·1	4·5
1880,	24·5	23·7	38·0	10·1	3·7
1881,	23·0	24·3	38·2	10·6	3·9
Average,	26·8	24·2	32·9	12·0	4·1

*Excluding deaths from unspecified causes.

The nine infection diseases most prominent of that class caused fewer deaths, with the exception of 1878 and 1879, than in any other year of the decade, with a smaller rate of mortality, however, than in either of those years.

TABLE 52. — *Mortality from Prominent Zymotic Diseases, — Ten Years.*.

YEARS.	DISEASES.									
	Dysentery.	Typhoid Fever.	Whooping Cough.	Croup.	Dipththeria.	Measles.	Scarlatina.	Cholera Infantum.	Small-pox.	Total.
1872, .	564	1,703	363	480	273	428	1,377	3,254	1,029	9,471
1873, .	435	1,406	264	435	310	180	1,472	2,553	668	7,723
1874, .	366	1,147	449	411	502	161	1,382	2,322	26	6,766
1875, .	437	1,059	242	680	1,200	233	1,684	2,606	34	8,175
1876, .	417	881	192	684	2,610	47	1,222	2,087	31	8,171
1877, .	580	814	369	544	2,634	135	467	1,927	26	7,496
1878, .	602	679	400	583	1,934	305	404	1,573	2	6,482
1879, .	372	637	302	559	1,734	19	850	1,349	8	5,830
1880, .	395	882	230	625	1,769	236	574	2,118	38	6,867
1881, .	360	1,072	217	677	1,706	230	397	1,861	47	6,567

The progressive increase in small-pox from 1878, and from typhoid fever from 1879, has continued in spite of careful vaccination, drainage and introduction of pure drinking-water, the inference being that those diseases are only partly controlled by our sanitary measures. The advance in the mortality from typhoid fever was much more rapid in the three years, 1879–1881, than was the decline in the previous three years 1876–1878. The other infection diseases caused fewer deaths than in 1880, the decline being most marked in scarlet fever, which was the least fatal in 1881 of all the years since 1871. Diphtheria (with croup) caused only eleven deaths less than in 1880 and is now in its seventh year of excessive prevalence.

As regards the infection diseases, the year has been one of unusual good health. The increase in typhoid fever is in accordance with the periodic rise and fall of that disease, and diphtheria was the only severe epidemic.

The *constitutional diseases* were quite near the average mortality, but above that of the previous year. Cancer and consumption, the chief diseases in that class, go on increasing in numerical fatality — consumption less rapidly than cancer. From 1857 to 1880, the mortality-rate from cancer more than doubled, while from consumption there was a diminution of nearly twenty-five per cent. There were in 1881 949 deaths from cancer, and 5,886 from consumption, as compared with 242 and 4,625 in 1857 and with 928 and 5,494 in 1880.

The principal *local diseases* still show an increase in numbers of deaths which has been almost steadily progressing in the ten years; and the same statement is true of heart disease. The increase in Bright's disease is still more marked. Apoplexy and paralysis together were only slightly more fatal than in 1880, pneumonia shows a moderate decrease, and insanity fluctuates almost every second year.

TABLE 53. — *Mortality from Principal Local Diseases, — Ten Years.*

YEARS.	DISEASES.									
	Apoplexy.	Paralysis.	Insanity.	Convulsions.	Heart Diseases.	Bronchitis.	Pleurisy.	Pneumonia.	Peritonitis.	Bright's Disease.
1872, . .	409	791	193	658	1,218	287	81	2,295	100	223
1873, . .	431	858	88	629	1,252	328	90	2,097	102	271
1874, . .	433	775	100	595	1,293	395	103	2 386	129	299
1875, . .	460	896	118	607	1,355	433	103	2,940	155	293
1876, . .	507	826	146	597	1,370	428	86	2,447	123	308
1877, . .	544	873	112	568	1,391	397	82	1,972	126	329
1878, . .	562	895	152	542	1,509	548	80	2,171	164	383
1879, . .	663	932	118	589	1,608	690	90	2,647	226	435
1880, . .	746	933	142	686	1,822	780	98	3,076	270	552
1881, . .	718	998	129	665	1,937	843	88	2,967	284	692

In *developmental diseases*, the prevalence of puerperal fever was marked, and there was a striking decrease in the deaths ascribed to childbirth, but the two together were 205 deaths in 1881 as compared with 211 in 1880. The deaths of infants just after birth, or earlier, was much larger than usual. The obscure expression "teething" is still too prominent in the list.

TABLE 54.—*Mortality from Chief Developmental Diseases,—Ten Years.*

YEARS.	DISEASES.					
	Teething.	Still-born, Infantile, Premature.	Child-birth.	Abortion.	Puerp. Convulsions.	Old Age.
1872, . . .	367	2,159	267	3	15	1,664
1873, . . .	348	2,020	301	2	28	1,672
1874, . . .	286	2,189	293	7	34	1,549
1875, . . .	325	2,095	298	10	19	1,732
1876, . . .	273	1,860	276	20	20	1,661
1877, . . .	259	1,773	198	10	29	1,586
1878, . . .	226	1,839	214	10	28	1,596
1879, . . .	151	1,753	174	2	30	1,597
1880, . . .	184	1,894	183	13	28	1,693
1881, . . .	193	2,078	156	10	49	1,816

Violent deaths show a decided diminution in deaths by homicide and a great increase over the previous year from suicide. The railroad accidents were by far the most of any year in the decade.

TABLE 55. — *Violent Deaths, — Ten Years.*

YEARS.	Burns and Scalds.	Poison.	Railroad Accidents.	Drowning and Lost at Sea.	Freezing.	Heat.	Homicide.	Suicide.	Total.
1872, . .	93	26	122	299	2	71	27	117	757
1873, . .	88	30	126	432	2	22	26	117	843
1874, . .	84	45	104	436	2	18	26	115	830
1875, . .	171	23	102	330	12	11	23	159	831
1876, . .	98	33	108	475	5	38	24	119	900
1877, . .	83	38	137	260	2	10	20	163	713
1878, . .	79	40	129	299	4	46	20	126	743
1879, . .	88	38	119	461	3	11	17	161	898
1880, . .	80	48	146	251	–	31	15	133	704
1881, . .	101	48	171	276	2	24	12	165	799

Pulmonary consumption is, as usual, by far the most fatal of all the diseases. Pneumonia is next, as it was in 1874, 1875, 1878, 1879 and 1880, being third in 1872, 1873, 1876 and 1877. Heart disease, sometimes a vague term, is third, in place of occupying a lower place from fourth to eighth in the previous nine years. Cholera infantum fell steadily from the second place in 1872 and 1873 to the sixth in 1879, was third in 1880, and is in 1881 fourth. Old age, fifth in order, was sixth in 1880 and fourth or fifth from 1872 until then. Diphtheria was second in 1876 and 1877, third in 1878 and 1879, fifth in 1880 and is now sixth. Typhoid fever, after having fallen from the fourth place in 1872 to the thirteenth in 1879, was tenth in 1880, and this year is seventh. Cephalitis was tenth in 1879 and ninth in 1880; this year eighth. Paralysis, for the previous four years seventh. Cancer was eighth in 1880 and 1879; previously from tenth to twelfth. Bronchitis has been eleventh for three years.

TABLE 56.—*Mortality from Twelve Prominent Causes, 1881.*

1. Pulmonary Consumption, .	5,886	7. Typhoid Fever, . . .	1,072
2. Pneumonia, ...	2,967	8. Cephalitis, . . .	1,058
3. Heart Diseases, . . .	1,937	9. Paralysis, . . .	998
4. Cholera Infantum, . .	1,861	10. Cancer, ...	945
5. Old Age, ...	1,816	11. Bronchitis, . . .	843
6. Diphtheria, . . .	1,706	12. Debility, ...	770

The other prominent causes of death were as follows in order: Apoplexy, 718; tabes mesenterica, 692; Bright's disease and nephritis, 692; croup, 677; convulsions, 665; infantile, premature, etc., 612; hydrocephalus, 490; brain diseases, 481; diarrhœa, 458; enteritis, 456; casualty, 409; scarlatina, 397; dysentery, 360; dropsy, 292; fractures and contusions, 279; drowning and lost at sea, 276.

The twelve leading causes of death constituted 59·98 per cent. of the mortality for the year, as compared with 59·8 in 1880.

Table 57. — *Percentage of Total Mortality from Five Chief Causes, by Counties, 1881.**

COUNTIES.	1.		2.		3.		4.		5.	
Barnstable,	Consumption,	18·6	Heart Disease,	8·5	Old Age,	8·3	Pneumonia,	8·1	Paralysis,	6·1
Berkshire,	Consumption,	13·1	Pneumonia,	9·3	Old Age,	7·3	Heart Disease,	7·1	Typhoid Fever,	5·0
Bristol,	Consumption,	14·5	Cholera Inf'm,	6·8	Pneumonia,	6·4	Heart Disease,	5·4	Old Age,	5·3
Dukes and Nantucket,	Consumption,	20·0	Old Age,	17·1	Heart Disease,	6·3	Cancer,	4·9	Pneumonia,	4·4
Essex,	Consumption,	18·5	Pneumonia,	7·5	Heart Disease,	6·4	Cholera Inf'm,	5·3	Old Age,	5·3
Franklin,	Consumption,	18·9	Old Age,	10·1	Pneumonia,	8.1	Heart Disease,	5·7	Paralysis,	3·9
Hampden,	Consumption,	17·3	Pneumonia,	9·7	Cholera Inf'm,	6·5	Old Age,	5·3	Heart Disease,	4·4
Hampshire,	Consumption,	13·1	Pneumonia,	10·9	Old Age,	7·0	Heart Disease,	6·3	Diphtheria,	5·6
Middlesex,	Consumption,	17·4	Pneumonia,	8·6	Cholera Inf'm,	6·2	Heart Disease,	5·9	Diphtheria,	4·9
Norfolk,	Consumption,	15·8	Pneumonia,	10·2	Diphtheria,	8·3	Old Age,	7·8	Heart Disease,	7·3
Plymouth,	Consumption,	13·6	Old Age,	9·0	Diphtheria,	8·9	Pneumonia,	7·0	Heart Disease,	6·9
Suffolk,	Consumption,	16·8	Pneumonia,	8·2	Diphtheria,	6·5	Cholera Inf'm,	5·0	Heart Disease,	4·6
Worcester,	Consumption,	15·5	Pneumonia,	9·3	Old Age,	5·9	Heart Disease,	5·6	Cholera Inf'm,	4·8

* Still-births and deaths from unspecified causes excluded.

TABLE 58.—*Deaths from most Destructive Five Causes, by Ages, 1881.*

AGES.	Total Deaths.	1.		2.		3.		4.		5.	
Under 5, .	11,970	Cholera Int'm,	1,861	Diphtheria, .	955	Pneumonia, .	912	Cephalitis, .	672	Debility, .	669
5 to 10, .	1,500	Diphtheria, .	586	Croup, . .	108	Cephalitis, .	103	Scarlet Fever,	100	Pneumonia, .	86
10 to 15, .	748	Diphtheria, .	146	Consumption,	107	Typhoid Fev.,	91	Heart Disease,	41	Cephalitis, .	37
15 to 20, .	1,217	Consumption,	544	Typhoid Fev.,	165	Pneumonia, .	65	Heart Disease,	52	Diphtheria, .	42
20 to 30, .	3,648	Consumption,	1,782	Typhoid Fev.,	342	Pneumonia, .	186	Heart Disease,	106	Childbirth, .	67
30 to 40, .	2,900	Consumption,	1,169	Pneumonia, .	225	Heart Disease,	149	Typhoid Fev.,	126	Bright's Dis.,	82
40 to 50, .	2,623	Consumption,	761	Pneumonia, .	260	Cancer, . .	164	Heart Disease,	156	Bright's Dis.,	99
50 to 60, .	2,646	Consumption,	498	Pneumonia, .	287	Heart Disease,	266	Cancer, . .	214	Paralysis, .	122
60 to 70, .	3,150	Heart Disease,	395	Consumption,	389	Pneumonia, .	336	Paralysis, .	221	Cancer, . ,	215
70 to 80, .	3,402	Old Age, .	488	Heart Disease,	464	Pneumonia, .	367	Paralysis, .	317	Consumption,	247
Over 80, .	2,488	Old Age, .	1,170	Pneumonia, .	207	Paralysis, .	188	Apoplexy, .	184	Heart Disease,	163
Not stated, .	166	-	-	-	-	-	-	-	-	-	-

The five causes of death most prominent at the several ages are found by Table 58 to differ very much. The order in 1881 shows the usual general characteristics.

As last year, in infancy and early childhood, diarrhœal diseases, diphtheria and pneumonia stand easily first. After them come somewhat obscure diseases of the respiratory, digestive and cerebro-spinal organs which are commonly described by their more prominent symptoms, under vague terms such as cephalitis, debility, convulsions.

From five to ten, infective diseases are most prominent, many ascribed to cephalitis belonging probably with them, and next pneumonia.

Pulmonary consumption, appearing second in order from ten to fifteen, causes one-seventh of the diseases at that age, and then up to the age of sixty being easily first, reaching its highest point between twenty and thirty, where it causes nearly one-half of all the deaths.

Typhoid fever becomes the second cause of death from fifteen to thirty, third from ten to fifteen, and fourth from thirty to forty.

Pneumonia is second from thirty to sixty and over eighty, third under five and from fifteen to thirty, fifth from five to ten.

Heart disease is very fatal from fifteen to sixty, being then third or fourth on the list, and most destructive of life from fifty to sixty.

Cancer is fourth and fifth from fifty to seventy.

Childbirth is attended with the greatest proportion of deaths from twenty to thirty.

Old age, pneumonia, paralysis, apoplexy and heart disease constitute the causes of death to the aged.

TABLE 59. — *Number of Deaths, from Several Specified Causes, of each Sex, in each Month, and at Different Specified Periods of Life, which were registered during the year 1881.*

	THE YEAR 1881.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Typhoid Fever.	Dysentery.	Cholera Infantum.	Consumption.	Pneumonia.
	Totals,	47	230	397	1,706	677	1,072	360	1,861	5,886	2,967
SEX.	Males,	23	114	196	871	354	544	176	993	2,640	1,481
	Females,	24	116	201	835	323	528	184	868	3,246	1,486
	Not stated,	–	–	–	–	–	–	–	–	–	–
MONTHS.	January,	–	48	54	205	89	63	9	9	475	360
	February,	–	41	42	159	77	57	4	5	468	380
	March,	2	45	45	164	60	71	8	14	530	363
	April,	2	34	35	148	61	77	4	7	546	392
	May,	11	30	52	131	43	54	7	13	513	278
	June,	2	11	49	122	39	35	15	33	451	159
	July,	4	11	34	105	23	50	45	384	442	105
	August,	–	2	23	91	29	78	125	831	481	87
	September,	1	1	9	142	33	143	81	403	445	106
	October,	3	4	16	149	75	174	50	136	528	150
	November,	8	2	20	139	75	153	8	17	479	246
	December,	14	1	18	151	73	117	4	9	528	341
	Not stated,	–	–	–	–	–	–	–	–	–	–

	Totals,	47	230	397	1,706	677	1,072	360	1,861	5,886	2,967
Ages.	Under 5,	15	182	272	955	551	61	159	1,861	271	912
	5 to 10,	6	25	100	486	108	58	20	-	50	86
	10 to 15,	2	3	15	146	10	91	6	-	107	31
	15 to 20,	6	1	3	42	-	165	3	-	544	65
	20 to 30,	11	5	4	31	1	342	9	-	1,782	186
	30 to 40,	1	5	2	17	1	126	13	-	1,169	225
	40 to 50,	3	1	-	9	1	76	14	-	761	260
	50 to 60,	1	1	-	8	1	41	18	-	498	287
	60 to 70,	-	1	-	4	1	47	33	-	389	336
	70 to 80,	-	5	-	1	1	50	48	-	247	367
	Over 80,	1	-	-	1	1	10	36	-	50	207
	Not stated,	1	1	1	6	1	5	1	-	18	5

Table 60.—*Percentage of Deaths, from Several Specified Causes, of each Sex, in each Month, and at Different Specified Periods of Life, which were registered during the year 1881.*

	THE YEAR 1881.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Typhoid Fever.	Dysentery.	Cholera Infantum.	Consumption.	Pneumonia.
	Totals,	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Sex.	Males,	48·94	49·57	49·37	51·06	52·29	50·75	48·89	53·36	44·85	49·92
	Females,	51·06	50·43	50·63	48·94	47·71	49·25	51·11	46·64	55·15	50·08
	Not stated,	–	–	–	–	–	–	–	–	–	–
Months.	January,	–	20·87	13·60	12·02	13·15	5·88	2·50	·48	8·07	12·13
	February,	–	17·83	10·58	9·32	11·37	5·32	1·11	·27	7·95	12·81
	March,	4·25	19·56	11·34	9·61	8·86	6·62	2·22	·75	9·00	12·23
	April,	4·25	14·78	8·82	8·68	9·01	7·18	1·11	·38	9·28	13·21
	May,	23·41	13·04	13·10	7·68	6·35	5·04	1·95	·70	8·72	9·37
	June,	4·26	4·78	12·34	7·15	5·76	3·27	4·17	1·77	7·66	5·36
	July,	8·51	4·78	8·56	6·16	3·40	4·67	12·50	20·64	7·51	3·54
	August,	–	·87	5·79	5·33	4·28	7·28	34·72	44·65	8·17	2·93
	September,	2·13	·44	2·27	8·32	4·87	13·34	22·50	21·66	7·56	3·58
	October,	6·38	1·74	4·03	8·73	11·08	16·22	13·89	7·31	8·97	5·06
	November,	17·02	·87	5·04	8·15	11·08	14·27	2·22	·91	8·14	8·29
	December,	29·78	·44	4·53	8·85	10·78	10·91	1·11	·48	8·97	11·49
	Not stated,	–	–	–	–	–	–	–	–	–	–

	Totals,	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Ages.	Under 5,	31·91	79·13	68·51	55·98	81·39	5·69	44·17	100·00	4·61	30·74
	5 to 10,	12·76	10·87	25·19	28·49	15·95	5·41	5·56	-	·85	2·90
	10 to 15,	4·26	1·30	3·78	8·55	1·48	8·49	1·67	-	1·82	1·05
	15 to 20,	12·76	·44	·76	2·46	-	15·39	·83	-	9·24	2·19
	20 to 30,	23·41	2·17	1·01	1·82	·15	31·90	2·50	-	30·27	6·27
	30 to 40,	2·13	2·17	·50	1·00	·15	11·75	3·61	-	19·85	7·58
	40 to 50,	6·38	·44	-	·53	·15	7·09	3·89	-	12·93	8·76
	50 to 60,	2·13	·44	-	·47	·15	3·82	5·00	-	8·46	9·67
	60 to 70,	-	·44	-	·23	·15	4·39	9·16	-	6·61	11·33
	70 to 80,	-	2·17	-	·06	·15	4·67	13·33	-	4·20	12·37
	Over 80,	2·13	-	-	·06	·14	·93	10·00	-	·85	6·97
	Not stated,	2·13	·43	·25	·35	·14	·47	·28	-	·31	·17

TABLE 61.—*Number of Deaths, from Several Specified Causes, of each Sex, in each Month, and at Different Specified Periods of Life, which were registered during Nineteen Years, 1863–81.*

	NINETEEN YEARS.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Typhoid Fever.	Dysentery.	Cholera Infantum.	Consumption.	Pneumonia.
	Totals,	3,240	3,783	19,075	19,754	10,466	21,366	12,051	33,827	97,047	39,996
SEX.	Males,	1,940	1,921	9,550	9,385	5,517	11,061	5,973	17,956	43,695	20,401
	Females,	1,297	1,860	9,520	10,361	4,946	10,301	6,068	15,836	53,340	19,591
	Not stated,	3	2	5	8	3	4	10	35	12	4
MONTHS.	January,	467	248	2,221	2,138	1,264	1,426	110	140	8,224	4,851
	February,	283	316	1,946	1,679	1,006	1,135	112	122	7,658	4,970
	March,	271	390	2,200	1,552	1,034	1,235	125	171	8,888	5,454
	April,	258	428	2,000	1,423	838	1,193	139	177	8,559	4,771
	May,	294	495	1,881	1,321	659	1,083	155	252	8,618	3,802
	June,	198	469	1,478	1,262	454	973	324	772	7,375	2,132
	July,	182	490	1.145	1,167	382	1,241	1,752	8,942	7,749	1,502
	August,	115	321	927	1,113	370	2,247	4,185	13,531	8,132	1,268
	September,	147	128	834	1,516	599	3,029	3,285	7,092	8,009	1,529
	October,	219	105	1,126	2,146	1,088	3,459	1,362	2,085	8,078	2,236
	November,	306	162	1,518	2,231	1,370	2,507	344	382	7,748	3,244
	December,	500	230	1,795	2,208	1,402	1,826	154	159	7,989	4,233
	Not stated,	–	1	4	3	–	12	4	2	20	4

	Totals,	3,240	3,783	19,075	19,754	10,466	21,366	12,051	33,827	97,047	39,996
Ages.	Under 5,	1,053	3,044	12,697	10,886	8,885	1,887	6,396	33,827	5,752	13,973
	5 to 10,	225	341	4,673	5,652	1,415	1,365	828	-	962	1,131
	10 to 15,	109	60	931	1,538	92	1,613	243	-	1,743	449
	15 to 20,	276	76	320	494	14	3,051	192	-	8,923	954
	20 to 30,	862	122	276	494	12	5,154	432	-	27,103	2,428
	30 to 40,	333	44	82	299	13	2,390	444	-	18,384	2,786
	40 to 50,	142	34	23	131	6	1,672	473	-	12,161	3,176
	50 to 60,	96	14	22	86	5	1,359	603	-	8,550	3,497
	60 to 70,	58	14	11	83	2	1,362	795	-	7,473	4,517
	70 to 80,	30	20	4	36	2	1,031	970	-	4,599	4,589
	Over 80,	18	5	1	8	2	382	621	-	1,008	2,356
	Not stated,	38	9	35	47	18	100	54	-	389	140

TABLE 62.—*Percentage of Deaths, from Several Specified Causes, of each Sex, in each Month, and at Different Specified Periods of Life, which were registered during the Nineteen Years, 1863–81.*

	NINETEEN YEARS.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Typhoid Fever.	Dysentery.	Cholera Infantum.	Consumption.	Pneumonia.
	Totals,	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
SEX.	Males,	59·88	50·78	50·07	47·51	52·71	51·77	49·57	53·09	45·03	51·01
	Females,	40·03	49·17	49·91	52·45	47·26	48·21	50·35	46·82	54·96	48·98
	Not stated,	·09	·05	·02	·04	·03	·02	·08	·09	·01	·01
MONTHS.	January,	14·41	6·56	11·65	10·80	12·08	6·67	·91	·41	8·48	12·13
	February,	8·73	8·36	10·20	8·50	9·61	5·31	·93	·36	7·89	12·43
	March,	8·36	10·31	11·54	7·86	9·88	5·78	1·04	·51	9·16	13·64
	April,	7·96	11·31	10·49	7·20	8·00	5·58	1·15	·52	8·82	11·93
	May,	9·08	13·09	9·86	6·69	6·30	5·07	1·29	·74	8·88	9·51
	June,	6·11	12·40	7·75	6·39	4·34	4·55	2·69	2·28	7·60	5·33
	July,	5·62	12·95	6·00	5·91	3·65	5·81	14·54	26·44	7·99	3·75
	August,	3·55	8·49	4·86	5·64	3·54	10·52	34·73	40·00	8·38	3·17
	September,	4·54	3·39	4·37	7·68	5·72	14·18	27·26	20·97	8·25	3·82
	October,	6·76	2·78	5·90	10·86	10·40	16·19	11·30	6·16	8·32	5·59
	November,	9·45	4·28	7·96	11·29	13·09	11·73	2·85	1·13	7·98	8·11
	December,	15·48	6·08	9·41	11·18	13·39	8·55	1·28	·47	8·23	10·58
	Not stated,	-	-	-	-	-	·06	·03	·01	·02	·01

	Totals,	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Ages.	Under 5,	32·50	80·47	66·56	55·10	84·89	8·83	53·07	100·00	5·93	34·93
	5 to 10,	6·95	9·01	24·50	28·61	13·52	6·39	6·87	–	·99	2·83
	10 to 15,	3·36	1·59	4·88	7·80	·88	7·55	2·02	–	1·80	1·12
	15 to 20,	8·52	2·01	1·68	2·50	·13	14·28	1·59	–	9·19	2·39
	20 to 30,	26·60	3·22	1·45	2·50	·11	24·12	3·59	–	27·93	6·07
	30 to 40,	10·28	1·16	·43	1·51	·12	11·19	3·68	–	18·94	6·97
	40 to 50,	4·38	·90	·12	·66	1·06	7·82	3·93	–	12·53	7·94
	50 to 60,	2·96	·37	·12	·44	·05	6·36	5·00	–	8·81	8·74
	60 to 70,	1·79	·37	·06	·42	·02	6·37	6·60	–	7·70	11·29
	70 to 80,	·93	·53	·02	·18	·02	4·83	8·05	–	4·74	11·47
	Over 80,	·56	·13	–	·04	·02	1·79	5·15	–	1·04	5·89
	Not stated,	1·17	·24	·18	·24	·17	·47	·45	–	·40	·35

Brain Diseases.—There were 3,355 deaths from brain disorders — 1,682 of males, 1,672 of females; from softening of the brain, 56 of each sex; from apoplexy, 355 males, 363 females; from paralysis, 470 males, 528 females; from insanity, 47 males, 82 females; from cephalitis and unspecified brain diseases, 754 males, 643 females; in one the sex was not reported.

From apoplexy and paralysis taken together, there were 62 deaths below the age of 30; 71 from 30 to 40; 158 from 40 to 50; 236 from 50 to 60; 396 from 60 to 70; 501 from 70 to 80; 287 over 80; and 5 of unknown age. Sixty-nine per cent. of the deaths were in persons 60 years old and over.

Fifty-eight of the deaths from insanity were in persons of sixty years of age and over.

TABLE 63. — *Deaths from Brain Disorders, 1860–1881.*

YEARS.	Softening of Brain.	Apoplexy.	Paralysis.	Insanity.	Cephalitis and Unspecified Brain Diseases.	Totals.
1860,	45	238	402	71	630	1,386
1861,	42	274	417	61	764	1,558
1862,	48	251	401	66	716	1,482
1863,	33	268	471	62	798	1,632
1864,	46	321	473	64	1,068	1,972
1865,	43	263	479	75	964	1,824
1866,	58	261	487	106	885	1,797
1867,	41	281	469	111	806	1,708
1868,	56	311	630	91	922	2,010
1869,	67	331	607	87	923	2,015
1870,	74	394	630	103	968	2,169
1871,	71	390	714	89	998	2,262
1872,	94	409	791	103	1,487	2,884
1873,	90	431	858	88	1,184	2,651
1874,	103	433	775	100	1,134	2,545
1875,	99	460	896	118	1.142	2,715
1876,	95	507	826	146	1,053	2,627
1877,	109	544	873	112	1,011	2,649
1878,	118	562	895	152	1,182	2,909
1879,	105	663	928	118	1,132	2,946
1880,	121	746	933	142	1,422	3,364
1881,	112	718	998	129	1,398	3,355

In spite of sources of error, the main fact, as shown by Table 64, of an increase in the prevalence or fatality of disorders of the brain is without doubt true. For the twenty years, 1861–1880, the quiuquennial death-rates from apoplexy and paralysis were 5·77; 6·35; 7·82; 8·75: and from insanity, 0·52; 0·72; 0·63; 0·79, per 10,000 inhabitants.

TABLE 64.—*Death-Rates from Brain Diseases in Census Years.*

	DEATH RATES.					DEATHS.	
	1860.	1865.	1870.	1875.	1880.	1880.	1881.
Mortality-rates per 10,000 from—							
Apoplexy, ...	1·93	2·08	2·70	2·78	4·19	746	718
Softening of the Brain, .	·36	·33	58	·59	·68	121	142
Paralysis, ...	3·26	3·78	4·32	5·43	5·23	933	998
Insanity, ... :	·58	·59	·71	·71	·71	142	129
Cephalitis and brain disorders, ...	5·93	7·61	6·04	6·91	6·19	1,422	1,398
Totals, ...	12·06	14·39	14·95	16·42	17·00	3,364	3,385

Cancer.—Of 945 deaths from cancer, as compared with 928 in 1880, and 862, 807, 646, 657, 593, 585, 611, 542, 551, 516, 492 in the previous ten years, 336 were of males.

There were 606 deaths from cancer (including 73 of cancer of the uterus) in females.

Cholera infantum was 3·2 per cent lower in mortality per 10,000 than the average for ten years and less fatal, relatively to the population, than in any other years of the ten than 1878 and 1879. There were 993 deaths of males, and 868 of females.

TABLE 65.—*Mortality from Cholera Infantum,—Ten Years.*

YEARS.	Deaths from Cholera Infantum.	Death-Rate per 10,000 of Population.	YEARS.	Deaths from Cholera Infantum.	Death-Rate per 10,000 of Population.
1872, . .	3,254	21·24	1878, . .	1,573	9·44
1873, . .	2,553	16·25	1878, . .	1,349	7·86
1874, . .	2,322	14·41	1880, . .	2,118	11·31
1875, . .	2,606	15·77	1881, . .	1,861	-
1876, . .	2,087	12·63			
1877, . .	1,927	11·63	Average, .	2,165	-

Of the deaths from cholera infantum, 831 were in August; 403 in September; 384 in July; 136 in October; 33 in June; 17 in November; 14 in March; 13 in May; 9 in January and in December; 7 in April; 5 in February.

The several diarrhœal diseases classified together were each and all less fatal than in 1880. They constituted 8·8 per cent. of the total mortality for the year, against 10·2 per cent. in the previous year.

TABLE 66.—*Diarrhœal Diseases, 1872–1881.*

YEARS.	Diarrhœa.	Dysentery.	Cholera Infantum.	Cholera.	Enteritis.	Diarrhœal Diseases.
1872, ...	464	564	3,254	137	358	4,777
1873, ...	353	435	2,553	106	379	3,826
1874, ...	398	366	2,322	95	367	3,548
1875, ...	413	437	2,606	94	370	3,920
1876, ...	335	417	2,087	91	357	3,287
1877, ...	343	580	1,927	60	395	3,305
1878, ...	365	602	1,573	68	388	2,996
1879, ...	370	372	1,349	77	392	2,560
1880, ...	480	395	2,118	116	492	3,601
1881, ...	458	360	1,861	68	456	3,203

Consumption caused 5,886 deaths, 392 more than in 1880, or 16·1 of the deaths for the year (15·85 in 1880). This was at the rate of 3·15 per 1,000 of the population, ·07 higher than in 1880, and ·11 higher than in 1879, but much less than for any previous year.

The deaths of females exceeded the deaths of males by 606.

TABLE 67.—*Mortality from Pulmonary Consumption, by Months and Quarters, 1881.*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Months, . .	475	468	530	546	513	451	442	481	445	528	479	528
Quarters, . .	1,473			1,510			1,368			1,535		
Percentages, .	25·0			25·7			23·2			26·1		

The mortality increases to the age of 30, declining more slowly through the remaining years of life.

TABLE 68. — *Mortality from Pulmonary Consumption, by Sex and and Age, 1881.*

AGES.	Total Deaths 1881.	Deaths from Consumption.	Percentages at several Ages.	Males.	Females.
Under 15, ...	14,218	428	7·27	236	192
15 to 20, ...	1,217	544	9·24	203	341
20 to 30, ...	3,648	1,782	30·27	755	1,027
30 to 40, ...	2,900	1,169	19·86	520	649
40 to 50, ...	2,623	761	12·93	360	401
50 to 60, ...	2,648	498	8·46	268	230
60 to 70, ...	3,148	389	6·61	187	202
70 to 80, ...	3,402	247	4·20	125	122
80 and over, ...	2,488	50	·85	21	29
Age not stated, . . .	166	18	·31	9	9
Totals, ...	36,458	5,886	100·00	2,640	3,246

Plymouth County stands lower in the list than usual; Berkshire is commonly the lowest.

TABLE 69. — *Deaths from Pulmonary Consumption, by Counties, 1881.*

COUNTIES.	Deaths.	Percentage of Total Mortality.	COUNTIES.	Deaths.	Percentage of Total Mortality.
Barnstable, . .	94	17·97	Hampshire, .	119	18·47
Berkshire, . .	162	12·41	Middlesex, .	1,059	17·11
Bristol, . .	430	14·26	Norfolk, . .	258	15·68
Dukes and Nantucket, . .	41	19·71	Plymouth, . .	182	13·29
Essex, . .	873	18·27	Suffolk, . .	1,571	16·39
Franklin, . .	111	18·35	Worcester, .	632	15·09
Hampden, . .	354	16·85	The State, .	5,886	16·14

Table 70. — *Mortality from Dipththeria and Croup, — Twenty-five Years.*

Years.	Deaths.			Percentage of Deaths from all Causes.			Deaths to every 10,000 Living.		
	Croup.	Diphtheria.	Total.	Croup.	Diphtheria.	Total.	Croup.	Diphtheria.	Total.
1856, ...	519	–	–	2·46	–	–	4·5	–	–
1857, ...	518	–	–	2·41	–	–	4·4	–	–
1858, ...	497	18	515	2·36	·09	2·45	4·2	·1	4·3
1859, ...	528	32	560	2·48	·14	2·62	4·4	·2	4·6
1860, ...	579	258	837	2·46	1·10	3·56	4·7	2·1	6·8
1861, ...	461	643	1,104	1·89	2·64	4·53	3·7	5·2	8·9
1862, ...	484	663	1,147	2·08	2·85	4·93	3·9	5·3	9·2
1863, ...	864	1,420	2,284	3·09	5·08	8·17	6·9	11·3	18·2
1864, ...	768	1,231	1,999	2·66	4·27	6·93	6·1	9·8	15·9
1865, ...	504	672	1,176	1·91	2·56	4·47	4·0	5·3	9·3
1866, ...	431	399	830	1·79	1.65	3·44	3·3	3·1	6·4
1867, ...	366	251	607	1·53	1·07	2·60	2·6	1·9	4·5
1868, ...	485	297	782	1·92	1·18	3·10	3·5	2·2	5·7
1869, ...	473	296	769	1·84	1·15	2·99	3·3	2·1	5·4

1870, ...	434	242	676	1·61	·89	2·50	2·9	1·7	4·6
1871, ...	473	274	747	1·69	·97	2·66	3·2	1·8	5·0
1872, ...	480	273	753	1·38	·78	2·16	3·1	1·8	4·9
1873, ...	435	310	745	1·28	·92	2·20	2·8	1·9	4·7
1874, ...	411	502	913	1·28	1·56	2·84	3·5	3·1	5·6
1875, ...	680	1,200	1,880	1·92	3·39	5·31	4·1	7·3	11·4
1876, ...	684	2,610	3,294	2·18	8·11	10·24	4·1	15·8	19·9
1877, ...	544	2,634	3,178	1·78	8·65	10·43	3·3	15·8	19·1
1878, ...	583	1,934	2,517	1·91	6·35	8·26	3·4	11·6	15·0
1879, ...	559	1,734	2,293	1·69	5·24	6·93	3·3	10·1	13·4
1880, ...	625	1,769	2,394	1·77	5·01	6·78	3·6	9·9	13·5
1881, ...	677	1,706	2,383	1·88	4·67	6·55	–	–	–

TABLE 71.—*Mortality from Diphtheria and Croup, by Counties, 1881.*

COUNTIES.	Deaths from Diphtheria and Croup, 1881.	COUNTIES.	Deaths from Diphtheria and Croup, 1881.
Barnstable,	18	Middlesex,	416
Berkshire,	33	Norfolk,	136
Bristol,	147	Plymouth,	145
Dukes and Nantucket,	1	Suffolk,	815
Essex,	267	Worcester,	236
Franklin,	25		
Hampden,	72	The State,	2,383
Hampshire,	72		

The severe epidemic of diphtheria has abated only a little during the year, but showing a striking increase in the two counties of Hampshire and Plymouth over the previous year.

Sixty-three per cent. of the deaths from diphtheria and croup were of children under 5 years of age; 89 per cent. were under 10 years of age.

TABLE 72.—*Deaths from Diphtheria and Croup by Seasons, 1881.*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Months,	294	236	224	209	174	161	128	120	175	224	214	224
Quarters,	754			544			423			662		
Percentages,	31·64			22·83			17.75			27.78		

Dysentery, tabulated with diarrhœal diseases on page 80, caused 35 fewer deaths than in 1880; 125 in August; 81 in September; 50 in October; 45 in July; 15 in June; 9 in January; 8 in March and in November; 7 in May; 4 in April and December.

One hundred and fifty-nine of the deaths were in children under five years of age; 48 from 70 to 80; 36 over 80; 33 from 60 to 70; 20 from 5 to 10; 18 from 50 to 60; 14 from 40 to 50; 13 from 30 to 40; 9 from 20 to 30; 6 from 10 to 15; 3 from 15 to 20.

TABLE 73.—*Deaths from Dysentery, by Counties, 1881.*

COUNTIES.	Deaths from Dysentery, 1881.	COUNTIES.	Deaths from Dysentery, 1881.
Barnstable,	-	Hampshire,	18
Berkshire,	11	Middlesex,	57
Bristol,	53	Norfolk,	15
Dukes and Nantucket,	8	Plymouth,	16
Essex,	45	Suffolk,	97
Franklin,	4	Worcester,	23
Hampden,	13	The State,	360

Measles was somewhat less fatal than in the previous year, but still rather high. Of the 230 deaths, 182 were of children under 5, and 25 from 5 to 10 years of age.

The epidemic was confined to the later part of winter, contrary to the more common rule, 48 deaths being in January; 41 in February; 45 in March; 34 in April; 30 in May; 11 in June and in July; 2 in August; 1 in September; 4 in October; 2 in November; 1 in December.

TABLE 74.—*Mortality from Measles, 1860–1881.*

YEARS.	Deaths from Measles.	Deaths from Measles to 100 Deaths from all Causes.	Death-Rates per 10,000 Living.
1860,	224	·95	1·8
1861,	209	·86	1·7
1862,	369	1·59	2·9
1863,	142	·51	1·1
1864,	320	1·12	2·5
1865,	136	·52	1·1
1866,	109	·46	·8
1867,	194	·85	1·5
1868,	287	1·12	2·1
1869,	222	·85	1·6
1870,	269	·98	1·8
1871,	131	·47	·9
1872,	428	1·22	2·8
1873,	180	·53	1·1
1874,	161	·50	1·0
1875,	233	·67	1·4
1876,	47	·14	·3
1877,	135	·44	·8
1878,	305	1·00	1·8
1879,	19	·06	·1
1880,	236	·67	1·32
1881,	230	·63	–

Pneumonia, although less fatal than in 1880, caused 15·8 deaths per 10,000 of the estimated population, a rate exceeded only twice in twenty years.

TABLE 75.—*Mortality from Pneumonia,—Twenty Years.*

YEARS.	Deaths from Pneumonia.	Deaths to 10,000 Living.	YEARS.	Deaths from Pneumonia.	Deaths to 10,000 Living.
1862,	1,140	9·2	1872,	2,295	14·9
1863,	1,724	13·8	1873,	2,097	13·3
1864,	1,801	14·0	1874,	2,386	14·8
1865,	1,493	11·8	1875,	2,940	17·8
1866,	1,639	12·5	1876,	2,447	14·7
1867,	1,378	10·3	1877,	1,972	11·8
1868,	1,651	11·9	1878,	2,171	13·0
1869,	1,736	12·2	1879,	2,647	15·4
1870,	1,718	11·9	1880,	3,076	16·1
1871,	1,858	12·4	1881,	2,967	–

The relative mortality by ages shows about the usual percentages, the excessive mortality falling on the very young.

TABLE 76.—*Mortality from Pneumonia by Ages, 1881.*

AGES.	Deaths from Pneumonia 1881.	PERCENTAGES.			
		1881.	1880.	1879.	1878.
Under 5, ...	912	30·7	31·4	28·0	36·2
5 to 10, ...	86	2·9	2·2	2·1	3·6
10 to 20, ...	96	3·2	3·1	4·0	2·7
20 to 30, ...	186	6·3	6·8	6·3	5·6
30 to 40, ...	225	7·6	7·7	8·1	6·4
40 to 50, ...	260	8·8	8·2	8·2	7·6
50 to 60, ...	287	9·7	9·4	9·9	7·6
60 to 70, ...	336	11·3	12·1	13·4	10·4
70 to 80, ...	367	12·3	12·2	13·0	12·4
Over 80, ...	207	7·0	6·6	6·8	7·3
Age not stated, ...	5	·2	·3	·2	·2
All ages, ...	2,967	–	–	–	–

By seasons the mortality in the first quarter was quite high (34·2 in 1880) and lower than usual in the second (30·0 in 1880).

As last year, the mortality was nearly alike in the two sexes—males 1,481, females 1,486.

TABLE 77.—*Mortality from Pneumonia, by Months and Quarters, 1881.*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Months, . .	360	380	363	392	278	159	105	87	106	150	246	341
Quarters, . .	1,103			829			298			737		
Percentages, .	37·18			27·94			10·04			24·84		

Scarlet Fever had the lowest proportion to the whole number of deaths in twenty years.

By ages, 272 of the deaths were in children under 5; 100 from 5 to 10; 15 from 10 to 15; 3 from 15 to 20; 4 from 20 to 30; 2 from 30 to 40; and one of age unknown.

One hundred and ninety-six deaths were of males, 201 of females. Fifty-four of the deaths were in January; 52 in May; 49 in June; 45 in March; 42 in February; 35 in April; 34 in July; 23 in August; 20 in November; 18 in December; 16 in October; 9 in September.

TABLE 78.—*Mortality from Scarlet Fever,—Twenty Years.*

YEARS.	Deaths from Scarlatina.	Percentage of Deaths from Scarlatina to Deaths from all Causes.	Death-Rates per 10,000 Living.	YEARS.	Deaths from Scarlatina.	Percentage of Deaths from Scarlatina to Deaths from all Causes.	Death-Rates per 10,000 Living.
1862, . .	1,261	5·42	10·1	1872,. .	1,377	3·93	8·9
1863, . .	1,399	5·01	11·1	1873,. .	1,472	4·34	9·4
1864, . .	1,503	5·21	11·9	1874,. .	1,382	4·33	8·6
1865, . .	807	3·06	6·4	1875,. .	1,684	4·81	10·2
1866, . .	385	1·58	2·9	1876,. .	1,222	3·79	7·4
1867, . .	828	3·63	6·2	1877,. .	467	1·53	2·8
1868, . .	1,369	5·35	9·1	1878,. .	404	1·33	2·4
1869, . .	1,405	5·39	9·9	1879,. .	850	2·63	4·9
1870, . .	683	2·49	4·7	1880,. .	574	1·63	3·2
1871, . .	867	3·10	5·8	1881,. .	397	1·09	–

Small-pox caused 11 deaths in Adams, 1 in Cheshire, and 1 in North Adams in Berkshire County; 1 in Fall River and 1 in New Bedford in Bristol; 1 in Gloucester in Essex; 1 in Montague and 1 in Northfield in Franklin; 15 in Holyoke and 3 in Westfield in Hampden; 1 in South Hadley in Hampshire; 1 in Stoneham and 1 in Wilmington in Middlesex; 1 in Hyde Park in Norfolk; 7 in Boston; 1 in Southbridge and 1 in Worcester.

Twenty-three of the deaths were of males, 24 of females. Twenty-one were of persons under 10 years of age; 18 from 10 to 30.

TABLE 79. — *Mortality from Small-pox, — Thirty Years.*

YEARS.	Deaths from Small-pox.	Percentage of Deaths from Small-pox to Deaths from all Causes.	Death-Rates per 10,000 Living.	YEARS.	Deaths from Small-pox.	Percentage of Deaths from Small-pox to Deaths from all Causes.	Death-Rates per 10,000 Living.
1852, . .	33	·18	·3	1867, . .	196	·82	1·5
1853, . .	38	·19	·4	1868, . .	20	.08	·2
1854, . .	207	·98	1·9	1869, . .	59	·22	·4
1855, . .	328	1·47	2·9	1870, . .	131	·48	·9
1856, . .	140	·68	1·2	1871, . .	294	1·05	1·9
1857, . .	23	·11	·2	1872, . .	1,029	2·94	6·7
1858, . .	12	·10	·1	1873, . .	668	1·97	4·3
1859, . .	255	1·22	2·1	1874, . .	26	·08	·2
1860, . .	334	1·45	2·7	1875, . .	34	·09	·2
1861, . .	33	·14	·3	1876, . .	31	·09	·2
1862, . .	40	·17	·3	1877, . .	24	·08	·15
1863, . .	42	·15	·3	1878, . .	2	·007	·012
1864, . .	242	·84	1·9	1879, . .	7	·02	·04
1865, . .	221	·84	1·7	1880, . .	38	·11	·21
1866, . .	141	·59	1·1	1881, . .	47	·13	–

Typhoid fever has the highest death-rate, 5·7 per 10,000 of the estimated population, since 1875, but much lower than the average of twenty-five years.

There were 544 deaths of males, 528 of females.

Three hundred and forty-two, nearly one-third of the deaths, were of persons from 20 to 30 years of age; 165 from 15 to 20; 126 from 30 to 40; 91 from 10 to 15; 76 from 40 to 50; 61 under 5; 58 from 5 to 10; 50 from 70 to 80; 47 from 60 to 70; 41 from 50 to 60.

One hundred and seventy-four of the deaths were in October; 153 in November; 143 in September; 117 in December; 78 in August; 77 in April; 71 in March; 63 in January; 57 in February; 54 in May; 50 in July; 35 in June — showing a much later greatest prevalence than usual.

TABLE 80. — *Mortality from Typhoid Fever, 1857–1881.*

YEARS.	Deaths from Typhoid Fever.	Percentage of Deaths from Typhoid Fever to Deaths from all Causes.	Deaths to each 10,000 Living.
1857, . .	1,010	4·69	8·6
1858, . .	901	4·27	7·6
1859, . .	932	4·38	7·7
1860, . .	937	3·97	7·6
1861, . .	989	4·06	7·9
1862, . .	1,135	4·88	9·1
1863, . .	1,442	5·16	11·5
1864, . .	1,344	4·66	10·7
1865, . .	1,694	6·43	13·4
1866, . .	1,091	4·53	8·4
1867, . .	965	4·24	7·2
1868, . .	896	3·49	6·5
1869, . .	1,205	4·62	8·5
1870, . .	1,333	4·88	9·1
1871, . .	1,116	3·99	7.5
1872, . .	1,703	4·86	11·1
1873, . .	1,406	4·15	8·9
1874, . .	1,147	3·56	7·1
1875, . .	1,059	3·06	6·4
1876, . .	881	2·74	5·3
1877, . .	814	2·67	4·9
1878, . .	679	2·23	4·1
1879, . .	637	1·94	3·7
1880, . .	882	2·49	4·9
1881, . .	1,072	2·94	–

The most striking increase is in Berkshire and the two lower counties on the Connecticut River, where also intermittent fever has been for a few years very prevalent.

TABLE 81.—*Deaths from Typhoid Fever, by Counties, 1869–81.*

COUNTIES.	Population, 1880.	DEATHS FROM TYPHOID FEVER.												
		1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
Barnstable,	31,897	46	42	38	32	32	20	18	21	22	13	15	13	16
Berkshire,	69,032	66	52	58	77	80	66	52	45	63	42	31	19	62
Bristol,	139,040	70	82	78	143	130	94	71	71	69	56	48	75	95
Dukes and Nantucket,	8,027	5	18	9	11	4	10	9	9	2	4	2	3	3
Essex,	244,535	152	189	130	222	141	122	120	100	102	113	96	138	148
Franklin,	36,001	55	48	49	38	46	28	30	24	21	12	15	18	22
Hampden,	104,142	114	121	99	185	171	112	92	92	56	50	49	75	110
Hampshire,	47,232	67	46	41	62	60	58	49	21	29	26	28	26	44
Middlesex,	317,830	192	189	166	255	186	184	145	131	108	91	92	127	151
Norfolk,	96,507	67	53	43	76	53	46	52	37	30	27	28	33	38
Plymouth,	74,018	42	51	50	62	71	55	42	35	25	22	25	38	37
Suffolk,	387,927	161	208	200	278	283	235	239	162	167	117	124	160	221
Worcester,	226,897	168	234	155	262	149	117	140	133	120	106	84	137	125
The State,	1,783,085	1,205	1,333	1,116	1,703	1,406	1,147	1,059	881	814	679	637	882	1,072

TABLE 82. — *Deaths from Typhoid Fever, by Age, Sex, and Seasons, 1871-1880.*

YEAR.	SEX.				Totals.	MONTHS.												AGES.											
	Sex.	Males.	Females.	Unknown.		January.	February.	March.	April.	May.	June.	July.	August.	September.	ber.	November.	December.	Under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Unknown.
1871, .	Ma., .	554	.	.	1,116	48	34	31	24	31	24	32	69	82	77	50	52	48	29	43	73	149	70	44	34	37	17	5	5
	Fem.,	.	562	.	.	46	30	41	41	23	26	36	66	64	90	58	41	47	37	54	89	119	58	44	36	36	31	9	2
1872, .	Ma., .	900	.	.	1,703	31	40	38	43	37	46	70	126	107	167	116	79	100	36	56	143	266	84	53	69	46	33	10	4
	Fem.,	.	803	.	.	29	37	42	42	42	21	39	91	134	160	91	75	68	47	80	141	192	83	62	43	42	30	12	3
1873, .	Ma., .	742	.	.	1,406	44	29	36	38	33	38	55	61	116	101	112	79	72	45	42	98	234	75	55	45	38	30	7	1
	Fem.,	.	663	.	.	53	29	53	34	18	22	38	55	87	109	94	71	59	43	63	109	155	70	47	33	45	26	11	2
	Unk.,	.	.	1	.	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
1874, .	Ma., .	595	.	.	1,147	42	32	31	33	40	31	43	63	81	97	55	47	55	31	35	84	146	76	36	48	43	31	9	1
	Fem.,	.	552	.	.	48	31	28	27	28	24	28	56	74	91	64	53	47	42	38	95	130	56	40	37	25	29	11	2
1875, .	Ma., .	549	.	.	1,059	33	28	23	29	26	25	29	54	91	106	63	42	38	39	25	68	126	62	54	47	49	27	12	2
	Fem.,	.	510	.	.	41	34	29	26	30	24	13	46	88	84	59	36	37	31	49	75	112	54	43	35	38	27	6	3
1876, .	Ma., .	450	.	.	881	33	21	30	19	26	27	30	54	66	67	48	29	38	32	41	59	105	52	38	26	31	22	6	–
	Fem.,	.	431	.	.	44	35	21	23	23	18	26	60	69	63	29	20	37	27	24	60	105	50	42	34	27	18	6	1

1878, .	Ma., .	336	.	.	679	37	19	32	16	20	14	13	32	47	47	30	29	35	24	24	41	80	39	24	21	26	18	3	1
	Fem.,	.	343	.	.	31	13	27	29	22	20	17	45	36	49	37	17	32	25	32	45	82	36	26	23	13	20	8	1
1879, .	Ma., .	328	.	.	637	18	19	15	17	21	19	21	37	42	48	30	41	29	21	18	41	80	42	32	20	21	20	4	–
	Fem.,	.	309	.	.	35	17	17	22	18	21	17	34	44	37	26	21	19	19	24	52	72	32	26	20	17	20	8	–
1880, .	Ma., .	476	.	.	882	33	37	18	31	27	18	33	46	58	86	50	39	33	24	24	72	131	61	38	27	30	23	10	3
	Fem.,	.	406	.	.	23	22	16	29	20	27	14	43	61	62	50	39	35	34	40	55	83	40	35	29	25	18	12	–
Totals, 1871–1880.	Ma., .	5,330	.	.	10324*	343	285	265	273	279	262	353	585	548	868	605	464	473	316	331	732	1,415	607	411	365	350	241	73	17
	Fem.,	.	4,992	.	-	371	262	295	295	237	225	251	538	923	813	578	404	418	330	444	785	1,138	524	397	311	301	237	92	14
	Unk.,	.	.	2	.	–	–	1	–	–	–	–	1	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–
	Tot., .	.	.	.	.	714	547	561	568	516	487	604	1,124	1,471	1,681	1,183	868	893	646	775	1,517	2,553	1,131	808	676	651	478	165	31

* Excluding 1 in which the month of death was not reported.

TABLE 83. — *Deaths from Typhoid Fever, by Counties and Towns, during the Ten Years, 1871–1880.*

.	Population, Census 1875.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Ten Years. 1871-1880.	Total Deaths per State Census 1875.
STATE, . . .	1,651,912	1,116	1,703	1,406	1,147	1,059	881	814	680	637	882	10,325	6·37
Barnstable, . . .	32,144	38	32	32	20	18	21	22	13	15	13	224	6·96
Berkshire, . . .	68,270	58	77	80	66	52	45	63	42	31	39	553	8·10
Bristol, . . .	131,087	78	143	130	94	71	71	69	56	48	75	835	6·38
Dukes and Nantucket,	7,272	9	11	4	10	9	9	2	4	2	3	63	8·66
Essex, ...	223,342	130	222	141	122	120	100	102	113	96	138	1,284	5·74
Franklin, . . .	33,696	49	38	46	28	30	24	21	12	15	18	281	8·34
Hampden, . . .	94,304	99	185	171	112	92	92	56	50	49	75	981	10.43
Hampshire, . . .	44,821	41	62	60	58	49	21	29	26	28	26	400	8·92
Middlesex, . . .	284,112	143	244	171	184	145	131	108	91	92	127	1,436	5·05
Norfolk, . .	88,321	41	71	47	46	52	37	30	28	28	33	413	4·68
Plymouth, . . .	69,362	50	62	71	55	42	35	25	22	25	38	425	6·12
Suffolk, . . .	364,886	225	294	304	235	239	162	167	117	124	160	2,027	5·55
Worcester, . . .	210,295	155	262	149	117	140	133	120	106	84	137	1,403	6·66
BARNSTABLE COUNTY,	32,144	38	32	32	20	18	21	22	13	15	13	224	6·96
Barnstable, . . .	4,302	10	1	5	8	2	2	3	1	4	–	31	7·20
Brewster, . . .	1,219	2	1	–	3	2	1	1	1	–	–	11	9·02
Chatham, . . .	2,274	5	5	1	2	1	1	2	1	1	–	19	8·35
Dennis, . . .	3,369	3	8	7	5	1	3	7	4	4	4	46	10·68
Eastham, . . .	639	–	–	1	–	2	–	–	1	–	–	4	6·26
			1	1	1	1	2	–	1	2	1	10	4·54

1878, .	Ma., .	336	.	.	679	37	19	32	16	20	14	13	32	47	47	30	29	35	24	24	41	80	39	24	21	26	18	3	1
	Fem.,	.	343	.	.	31	13	27	29	22	20	17	45	36	49	37	17	32	25	32	45	82	36	26	23	13	20	8	1
1879, .	Ma., .	328	.	.	637	18	19	15	17	21	19	21	37	42	48	30	41	29	21	18	41	80	42	32	20	21	20	4	-
	Fem.,	.	309	.	.	35	17	17	22	18	21	17	34	44	37	26	21	19	19	24	52	72	32	26	20	17	20	8	-
1880, .	Ma., .	476	.	.	882	33	37	18	31	27	18	33	46	58	86	50	39	33	24	24	72	131	61	38	27	30	23	10	3
	Fem.,	.	406	.	.	23	22	16	29	20	27	14	43	61	62	50	39	35	34	40	55	83	40	35	29	25	18	12	-
Totals, 1871-1880.	Ma., .	5,330	.	.	10324*	343	285	265	273	279	262	353	585	548	868	605	464	473	316	331	732	1,415	607	411	365	350	241	73	17
	Fem.,	.	4,992	.	.	371	262	295	295	237	225	251	538	923	813	578	404	418	330	444	785	1,138	524	397	311	301	237	92	14
	Unk.,	.	.	2	.	-	-	1	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Tot., .	.	.	.	.	714	547	561	568	516	487	604	1,124	1,471	1,681	1,183	868	893	646	775	1,517	2,553	1,131	808	676	651	478	165	31

* Excluding 1 in which the month of death was not reported.

TABLE 83.—*Deaths from Typhoid Fever, by Counties and Towns, during the Ten Years, 1871–1880.*

.	Population, Census 1875.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Ten Years. 1871-1880.	Total Deaths per State Census 1875.
STATE, . . .	1,651,912	1,116	1,703	1,406	1,147	1,059	881	814	680	637	882	10,325	6·37
Barnstable, . . .	32,144	38	32	32	20	18	21	22	13	15	13	224	6·96
Berkshire, . . .	68,270	58	77	80	66	52	45	63	42	31	39	553	8·10
Bristol, . . .	131,087	78	143	130	94	71	71	69	56	48	75	835	6·38
Dukes and Nantucket,	7,272	9	11	4	10	9	9	2	4	2	3	63	8·66
Essex, ...	223,342	130	222	141	122	120	100	102	113	96	138	1,284	5·74
Franklin, . . .	33,696	49	38	46	28	30	24	21	12	15	18	281	8·34
Hampden, . . .	94,304	99	185	171	112	92	92	56	50	49	75	981	10.43
Hampshire, . . .	44,821	41	62	60	58	49	21	29	26	28	26	400	8·92
Middlesex, . . .	284,112	143	244	171	184	145	131	108	91	92	127	1,436	5·05
Norfolk, . .	88,321	41	71	47	46	52	37	30	28	28	33	413	4·68
Plymouth, . . .	69,362	50	62	71	55	42	35	25	22	25	38	425	6·12
Suffolk, . . .	364,886	225	294	304	235	239	162	167	117	124	160	2,027	5·55
Worcester, . . .	210,295	155	262	149	117	140	133	120	106	84	137	1,403	6·66
BARNSTABLE COUNTY,	32,144	38	32	32	20	18	21	22	13	15	13	224	6·96
Barnstable, . . .	4,302	10	1	5	3	2	2	3	1	4	-	31	7·20
Brewster, . . .	1,219	2	1	-	3	2	1	1	1	-	-	11	9·02
Chatham, . . .	2,274	5	5	1	2	1	1	2	1	1	-	19	8·35
Dennis, . . .	3,369	3	8	7	5	1	3	7	4	4	4	46	10·68
Eastham, . . .	639	-	-	1	-	2	-	-	1	-	-	4	6·26
Falmouth, . . .	2,211	-	1	1	1	1	2	-	1	2	1	10	4·54
Harwich, . . .	3,355	4	4	2	3	5	3	5	1	3	2	32	9·53

Mashpee, ...	278	1	–	5	–	–	1	–	–	–	–	7	25·18
Orleans, ...	1,373	4	1	2	–	1	1	–	2	1	–	12	8·74
Provincetown, . .	4,357	–	–	2	–	–	2	1	–	–	3	8	1·83
Sandwich, . . .	3,417	1	8	2	2	1	1	2	1	–	2	20	5·85
Truro, ...	1,098	2	–	1	–	1	2	–	–	–	–	6	5·46
Wellfleet, . . .	1,988	4	–	2	–	–	–	1	–	–	1	8	4·02
Yarmouth . . .	2,264	2	3	1	1	1	2	–	–	–	–	10	4·41
Berkshire County, .	68,270	58	77	80	66	52	45	63	42	31	39	553	6·96
Adams, ...	15,760	11	15	20	14	10	14	11	17	10	6	118	8·12
Alford, ...	389	–	–	1	–	–	–	–	–	–	1	2	5·14
Becket, ...	1,329	1	2	3	2	–	2	1	2	1	2	16	12·03
Cheshire, . . .	1,693	2	2	1	–	1	–	2	–	–	–	8	4·72
Clarksburg, . . .	670	–	–	–	–	–	–	–	1	–	1	2	2·98
Dalton, ...	1,759	1	7	1	–	3	2	4	1	–	6	25	14·21
Egremont, . . .	890	2	–	3	1	–	–	2	1	–	–	9	10·11
Florida, ...	572	1	2	1	–	–	–	–	1	–	–	5	8·39
Great Barrington, .	4,385	6	5	3	6	9	5	13	4	6	4	61	13·91
Hancock, ...	730	–	–	–	–	–	–	–	–	–	–	–	–
Hinsdale, ...	1,571	1	–	3	1	1	1	2	–	1	–	10	6·36
Lanesborough, . .	1,357	2	–	1	–	1	–	1	–	2	–	7	4·42
Lee, ...	3,900	–	4	5	7	6	6	7	5	3	–	43	11·02
Lenox, ...	1,845	4	1	–	1	1	–	1	1	1	–	10	5·42
Monterey, . . .	703	2	2	–	–	–	–	–	–	–	–	4	5·69
Mount Washington, .	182	–	–	–	1	–	–	–	–	–	–	1	5·49
New Ashford, . .	160	–	–	–	–	–	–	–	–	–	–	–	–
New Marlborough, .	2,037	2	5	6	5	–	–	1	5	–	1	25	12·27
North Adams, . .	–	–	–	–	–	–	–	–	7	7	2	16	–
Otis, ...	855	1	1	2	2	–	2	–	–	–	–	8	9·35
Peru, ...	443	–	–	–	1	–	–	–	–	–	–	1	2·25
Pittsfield, . . .	12,267	9	16	17	9	5	8	7	1	4	9	85	6·92
Richmond, . . .	1,141	–	–	1	–	1	–	–	–	–	–	2	1·75

TABLE 83. — *Deaths from Typhoid Fever, &c.* — Continued.

	Population, Census 1875.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Ten Years. 1871-1880.	Total Deaths per 1,000, Census 1875.
Berkshire Co. — Con.													
Sandisfield,	1,172	1	2	2	2	1	-	5	1	-	-	14	11·94
Savoy,	730	3	1	1	1	-	-	1	-	-	1	8	10·96
Sheffield,	2,233	-	2	3	2	-	1	2	1	1	2	14	6·27
Stockbridge,	2,089	2	2	3	1	6	-	-	-	-	4	18	8·61
Tyringham,	517	-	-	1	-	3	-	-	-	-	1	5	9·67
Washington,	603	1	-	-	2	-	-	1	-	-	-	4	6·63
West Stockbridge,	1,981	-	2	1	4	2	1	-	-	1	-	11	5·55
Williamstown,	3,683	5	6	1	2	2	3	2	1	-	1	23	6·24
Windsor,	624	1	-	-	2	-	-	-	-	1	-	4	6·41
BRISTOL COUNTY,	131,087	78	143	130	94	71	71	69	56	48	75	835	6·38
Acushnet,	1,059	-	1	-	1	-	1	-	-	1	-	4	3·77
Attleborough,	9,224	2	7	11	6	2	2	4	2	2	6	44	4·77
Berkley,	781	1	1	-	-	-	1	-	-	-	-	3	3·84
Dartmouth,	3,434	1	2	1	4	-	-	2	1	2	3	16	4·65
Dighton,	1,755	-	-	-	-	-	-	1	1	-	1	3	1·70
Easton,	3,898	4	1	-	3	4	1	2	2	-	2	19	4·87
Fairhaven,	2,769	-	1	1	2	4	1	1	1	1	-	12	4·33
Fall River,	45,340	33	73	59	42	28	35	33	26	23	35	387	4·53
Freetown,	1,396	-	-	-	-	1	1	-	1	-	-	3	2·14
Mansfield,	2,656	-	2	3	2	2	2	1	1	1	3	17	6·40
New Bedford,	25,895	23	19	24	19	14	14	16	9	9	2	149	5·75
Norton,	1,595	-	2	-	2	2	1	1	-	-	3	11	6·89
Raynham.	1,687	1	3	3	-	3	-	1	-	4	1	16	9·48
Rehoboth,	1,827	-	1	1	-	-	1	1	2	-	-	6	3·28

Seekonk,	1,107	–	–	2	1	–	2	–	–	–	1	6	5·14
Somerset,	1,940	1	2	–	1	1	–	1	–	–	3	9	4·63
Swanzey,	1,308	–	–	3	1	2	–	–	1	–	1	8	6·11
Taunton,	20,445	9	24	20	5	7	8	4	8	5	9	99	3·84
Westport,	2,912	3	4	2	5	1	1	1	1	–	5	23	7·89
DUKES & NANTUCKET,	7,272	9	11	4	10	9	9	2	4	2	3	63	8·66
Chilmark,	508	–	–	–	–	–	–	1	–	–	–	1	1·96
Edgartown,	1,707	1	2	1	2	2	–	–	2	–	–	10	5·85
Gay Head,	216	–	–	–	–	–	–	–	–	–	–	–	–
Gosnold,	115	–	–	–	–	–	–	–	–	–	–	–	–
Tisbury,	1 525	5	6	2	2	3	3	–	–	2	1	24	15·73
Nantucket,	3,201	3	3	1	6	4	6	1	2	–	2	28	8·74
ESSEX COUNTY,	223,342	130	222	141	122	120	100	102	113	96	138	1,284	5·74
Amesbury,	5,987	4	3	2	4	1	3	4	5	2	2	30	5·01
Andover,	5,097	3	1	2	1	–	2	1	1	–	2	13	2·55
Beverly,	7,271	4	4	7	1	2	4	1	4	–	4	31	4·26
Boxford,	834	–	–	–	–	1	2	–	–	1	–	4	4·79
Bradford,	2,347	2	3	–	1	4	2	–	1	–	2	15	6·38
Danvers,	6,024	3	10	3	2	3	3	2	3	6	3	38	6·31
Essex,	1,713	–	–	–	–	1	1	2	–	–	1	5	2·91
Georgetown,	2,214	–	1	1	1	–	–	1	–	–	1	5	2·25
Gloucester,	16,754	7	21	8	7	8	6	9	11	3	5	85	5·07
Groveland,	2,084	–	2	2	–	–	–	1	2	2	1	10	4·79
Hamilton,	797	1	1	–	1	1	–	–	–	–	–	4	5·02
Haverhill,	14,628	7	17	8	4	10	7	10	8	9	6	86	5·88
Ipswich,	3,674	–	7	2	–	1	3	4	1	3	1	22	5·98
Lawrence,	34,916	26	56	38	40	30	19	23	30	23	27	312	8·93
Lynn,	32,600	22	36	21	15	24	12	9	13	12	26	190	5·82
Lynnfield,	769	–	–	–	1	–	2	–	–	1	–	4	5·20
Manchester,	1,560	3	2	1	1	1	–	2	2	–	1	13	8·33

TABLE 83. — *Deaths from Typhoid Fever, &c.* — Continued.

	Population, Census 1875.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Ten Years. 1871-1880.	Total Deaths per 1,000, Census 1875.
Essex Co. — Con.													
Marblehead, . . .	7,677	2	3	1	-	1	-	1	3	2	1	14	1·82
Merrimac, . . .	-	-	-	-	-	-	1	1	4	2	2	10	-
Methuen, . . .	4,205	-	1	1	-	2	-	2	3	3	3	15	3·56
Middleton, . . .	1,092	1	1	-	-	1	-	-	-	-	-	3	2·74
Nahant, . . .	766	-	-	-	-	1	-	-	-	-	1	2	2·61
Newbury, . . .	1,426	-	-	-	1	3	2	-	4	-	3	13	9·11
Newburyport, . .	13,323	10	7	4	8	-	4	7	3	10	7	60	4·50
North Andover, . .	2,981	3	2	3	3	1	6	2	1	-	3	24	8·05
Peabody, . . .	8,066	4	5	3	5	10	1	1	4	2	5	40	4·95
Rockport, . . .	4,480	4	7	9	2	1	1	2	2	1	4	33	7·36
Rowley, . . .	1,162	-	-	-	1	-	1	2	1	-	-	5	4·30
Salem, . . .	25,958	15	23	19	20	10	14	6	8	11	22	148	5·70
Salisbury, . . .	4,078	3	3	3	1	2	2	5	1	4	-	24	5·88
Saugus, . . .	2,578	2	1	1	-	1	1	-	-	-	3	9	3·48
Swampscott, . .	2,128	-	1	-	1	-	-	5	1	-	2	10	4·67
Topsfield, . . .	1,221	2	2	1	1	-	2	-	1	-	1	10	10·97
Wenham, . . .	911	1	-	-	-	-	-	-	-	1	-	2	2·19
West Newbury, . .	2,021	1	2	1	-	-	-	-	-	-	1	5	2·47
FRANKLIN COUNTY, .	33,696	49	38	46	28	30	24	21	12	15	18	281	8·34
Ashfield, . . .	1,190	-	2	2	2	2	-	-	-	-	1	9	7·56
Bernardston, . .	991	1	1	-	3	1	2	1	-	-	1	10	10·09
Buckland, . . .	1,921	3	2	2	2	1	1	1	1	-	-	13	6·76
Charlemont, . .	1,029	1	1	-	1	1	-	4	2	1	-	11	10·69
Colerain, . . .	1,699	3	1	1	1	3	1	1	1	1	1	14	8·24

Conway, ...	1,452	1	-	4	1	2	1	2	-	1	-	12	8·26
Deerfield, ...	3,414	1	5	7	1	1	3	2	-	3	1	24	7·03
Erving, ...	794	3	-	1	4	-	1	-	-	1	-	10	12·59
Gill, ...	673	1	1	1	1	1	1	-	-	-	1	7	10·40
Greenfield, ...	3,540	7	2	1	-	2	2	3	5	1	-	23	6·49
Hawley, ...	588	1	3	3	1	-	-	-	-	-	-	8	13·60
Heath, ...	545	1	-	-	-	-	-	-	-	-	-	1	1·83
Leverett, ...	831	2	2	3	-	-	1	1	-	-	-	9	10·83
Leyden, ...	524	-	-	-	-	-	1	-	-	-	-	1	1·90
Monroe, ...	190	-	-	-	1	-	-	-	1	-	-	2	10·52
Montague, ...	3,380	6	4	6	5	7	3	2	1	2	3	39	11·53
New Salem, . . .	923	1	-	3	-	1	-	-	-	1	-	6	6·50
Northfield, ...	1,641	3	1	1	2	2	2	-	-	3	2	16	9·75
Orange, ...	2,497	2	5	2	1	-	2	-	-	-	4	16	6·40
Rowe, ...	661	-	-	1	-	-	-	-	1	-	-	2	3·02
Shelburne, ...	1,590	3	2	1	1	-	-	3	-	1	-	11	6·09
Shutesbury, . . .	558	1	5	-	-	2	1	-	-	-	-	9	16·12
Sunderland, . . .	860	2	-	2	-	-	1	-	-	-	-	5	5·81
Warwick, ...	744	2	1	-	-	-	1	1	-	-	3	8	10·75
Wendell, ...	503	-	-	1	1	4	-	-	-	-	1	7	13·91
Whately, ...	958	4	-	4	-	-	-	-	-	-	-	8	8·35
HAMPDEN COUNTY, .	94,304	99	185	171	112	92	92	56	50	49	75	981	10·43
Agawam, ...	2,248	5	6	1	-	2	2	2	2	1	5	26	11·56
Blandford, ...	964	-	-	3	3	5	-	1	-	1	-	13	13·48
Brimfield, ...	1,201	-	1	1	-	-	1	2	1	1	-	7	5·82
Chester, ...	1,396	-	-	3	-	-	1	4	2	-	1	11	7·88
Chicopee, ...	10,335	7	24	13	10	9	6	9	5	7	8	98	9·48
Granville, ...	1,240	1	3	2	1	2	2	2	-	-	-	13	10·48
Hampden, ...	-	-	-	-	-	-	-	-	-	-	-	-	-
Holland, ...	334	-	-	-	1	-	-	-	-	-	-	1	2·99

TABLE 83. — *Deaths from Typhoid Fever, &c.* — Continued.

	Population, Census 1875.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Ten Years. 1871-1880.	Total Deaths per 1,000, Census 1875.
Hampden Co. — Con.													
Holyoke, . . .	16,260	21	31	52	36	17	25	6	7	19	20	234	14·39
Longmeadow, . .	1,467	-	-	-	-	1	-	-	-	-	1	2	1·36
Ludlow, . . .	1,222	-	2	4	-	1	4	-	1	3	2	17	13·91
Monson, . . .	3,733	5	6	4	3	4	2	2	2	1	2	31	8·34
(*State Primary Sch'l*),	-	1	1	1	1	-	-	-	-	1	-	5	-
Montgomery, . .	304	-	-	-	-	-	-	-	-	-	-	-	-
Palmer, . . .	4,572	6	10	10	2	1	4	-	4	-	7	44	9 62
Russell, . . .	643	-	2	-	2	-	3	1	-	-	1	9	13·99
Southwick, . . .	1,114	-	4	-	-	1	-	-	-	-	-	5	4·48
Springfield, . .	31,053	30	65	49	36	34	29	15	18	8	16	300	9·66
Tolland, . . .	452	1	-	-	-	-	2	-	-	-	-	3	6·63
Wales, . . .	1,020	3	3	3	2	-	1	-	-	-	-	12	11·76
Westfield, . . .	8,431	10	25	19	10	11	3	7	6	4	4	99	11·74
West Springfield, .	3,739	2	1	5	3	1	2	5	1	3	5	28	7·48
Wilbraham, . .	2,576	7	1	1	2	3	5	-	1	-	3	23	8·92
HAMPSHIRE COUNTY, .	44,821	41	62	60	58	49	21	29	26	28	26	400	8 92
Amherst, . . .	3,937	9	3	8	9	9	5	1	2	3	1	50	12·70
Belchertown, . .	2,315	2	4	6	6	2	1	2	1	1	2	27	11·66
Chesterfield, . .	746	1	-	-	1	-	1	-	2	1	-	6	8·04
Cummington, . .	916	1	1	-	-	1	-	-	-	-	-	3	3·27
Easthampton, . .	3,972	3	3	5	4	4	1	3	-	2	3	28	7·04
Enfield, . . .	1,065	1	2	2	-	1	-	-	1	-	-	7	6·57
Goshen. . . .	349	-	1	-	-	-	-	1	-	-	-	2	5·72

Granby, . . .	812	–	1	–	–	1	2	–	–	–	1	5	6·15
Greenwich, . . .	606	2	–	1	1	–	1	1	–	–	–	6	9·90
Hadley, . . .	2,125	4	6	1	5	6	2	1	2	2	–	29	13·64
Hatfield, . . .	1,600	–	2	4	1	1	1	–	–	–	1	10	6·25
Huntington, . .	1,095	–	4	–	1	1	–	2	–	1	–	9	8·21
Middlefield, . .	603	–	3	–	1	3	–	3	–	1	–	11	18·24
Northampton, . .	11,108	9	15	9	8	5	2	4	6	3	4	65	5·85
Pelham, . . .	633	1	2	2	1	1	–	1	–	–	–	8	12·63
Plainfield, . . .	481	–	–	–	–	–	–	–	–	–	–	–	–
Prescott, . . .	493	–	–	–	1	3	–	–	–	–	–	4	8·11
South Hadley, . .	3,370	4	1	1	1	2	1	1	4	4	4	23	6·82
Southampton, . .	1,050	–	1	1	1	1	–	–	–	1	1	6	5·71
Ware, ...	4,142	2	8	15	13	8	4	2	8	7	8	75	18·10
Westhampton, . .	556	–	1	3	1	–	–	1	–	1	1	8	14·38
Williamsburg, . .	2,029	–	3	1	2	–	–	4	–	1	–	11	5·42
Worthington, . .	818	2	1	1	1	–	–	2	–	–	–	7	8·55
MIDDLESEX COUNTY, .	284,112	143	244	171	184	145	131	108	91	92	127	1,436	5·22
Acton, ...	1,708	2	3	–	–	–	1	–	2	2	–	10	5·85
Arlington, . . .	3,906	–	1	–	1	1	2	2	–	4	1	12	3·07
Ashby, ...	962	–	2	–	1	1	–	–	–	–	–	4	4·15
Ashland, ...	2,211	4	3	2	1	6	2	3	1	–	4	26	11·75
Ayer, ...	1,872	–	–	1	2	–	1	–	–	2	1	7	3·73
Bedford, . . .	900	1	–	–	–	–	1	–	–	–	–	2	2·22
Belmont, . . .	1,937	–	–	1	1	–	3	2	–	–	–	7	3·61
Billerica, . . .	1 881	2	2	–	1	1	–	1	–	2	1	10	5·31
Boxborough, . .	318	–	–	–	–	–	–	–	–	–	–	–	–
Brighton, . . .	–	6	1	3	–	–	–	–	–	–	–	10	–
Burlington, . .	650	1	–	–	2	1	1	–	–	–	–	5	7·69
Cambridge, . .	47,838	31	38	19	22	14	17	14	8	6	10	179	3·74
Carlisle, . . .	548	1	3	–	1	–	–	–	–	–	–	5	9·12

TABLE 83. — *Deaths from Typhoid Fever, &c.* — Continued.

	Population, Census 1875.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Ten Years. 1871-1880.	Total Deaths per 1,000, Census 1875.
Middlesex Co. — Con.													
Charlestown,	-	17	10	12	-	-	-	-	-	-	-	39	-
Chelmsford,	2,372	2	1	1	1	3	-	-	1	3	5	17	7·16
Concord,	2,776	2	1	2	4	5	1	2	1	-	1	19	7·10
Dracut,	1,116	1	-	2	1	2	-	-	-	1	1	8	7·16
Dunstable,	452	-	-	-	-	-	-	-	-	-	-	-	-
Everett,	3,651	1	4	1	-	-	-	-	1	1	-	8	2·19
Framingham,	5,167	2	5	5	3	5	2	2	-	3	-	27	5·22
Groton,	1,908	1	1	-	1	1	-	1	1	-	1	7	2·18
Holliston,	3,399	-	5	3	5	-	1	1	-	1	1	17	5·01
Hopkinton,	4,503	2	4	3	6	3	4	5	2	5	10	44	9·74
Hudson,	3,493	4	4	4	7	3	2	8	1	2	6	41	11·73
Lexington,	2,505	2	-	-	-	3	1	1	-	1	1	9	3·59
Lincoln,	834	-	-	-	-	-	-	-	-	-	-	-	-
Littleton,	950	1	1	-	-	-	1	2	1	1	1	8	8·42
Lowell,	49,688	31	61	55	42	32	22	22	27	22	22	336	6·76
Malden,	10,843	-	15	1	5	4	8	6	4	6	7	56	5·16
Marlborough,	8,424	4	4	4	8	7	3	4	5	4	4	47	5·57
Maynard,	1,965	1	3	-	1	2	-	1	-	-	1	9	4·58
Medford,	6,627	1	4	4	2	-	3	3	1	1	4	23	3·47
Melrose,	3,990	6	3	2	2	1	5	1	3	-	-	23	5·76
Natick,	7,419	1	15	4	6	5	4	5	3	1	4	48	6·47
Newton,	16,105	-	5	7	5	3	7	3	6	5	4	45	2·79
North Reading,	979	1	-	1	-	2	-	-	-	-	-	4	4·08
Pepperell,	1,927	1	2	2	1	-	2	2	-	-	-	10	5·18
Reading,	3,186	-	2	2	-	1	1	1	1	-	1	9	2·82

Sherborn,	999	1	1	1	1	-	1	1	-	2	1	9	9·09
Shirley,	1,352	1	1	2	-	-	1	1	1	-	-	7	5·17
Somerville,	21,868	9	16	13	18	13	9	6	6	4	8	102	4·66
Stoneham,	4,981	4	4	2	3	-	2	-	-	3	4	22	4·41
Stow,	1,022	-	1	2	-	-	-	-	-	2	1	6	5·87
Sudbury,	1,177	1	1	1	-	1	-	-	-	-	2	6	5·09
Tewksbury,	1,997	1	-	1	2	1	2	-	1	-	-	8	4·00
(State Almshouse),	-	4	4	7	10	9	7	1	-	-	1	43	-
Townsend,	2,196	2	3	-	2	1	3	2	2	-	2	17	7·74
Tyngsborough,	665	-	2	-	1	-	-	-	-	-	1	4	6·01
Wakefield,	5,349	-	5	3	2	3	3	1	2	-	4	23	4·30
Waltham,	9,967	6	6	-	-	1	1	-	2	1	4	21	2·10
Watertown,	5,099	3	-	3	2	3	-	-	3	-	4	18	3·53
Wayland,	1,766	-	1	1	-	2	1	-	2	-	1	8	4·53
Westford,	1,933	1	-	2	1	-	1	-	-	-	2	7	3·62
Weston,	1,282	1	-	1	-	-	1	-	-	-	-	3	2·34
Wilmington,	879	-	-	-	-	-	1	-	-	-	-	1	1·13
Winchester,	3,099	-	-	1	2	2	-	1	3	4	-	13	4·19
Woburn,	9,568	3	7	5	8	3	3	3	-	3	1	36	3·76
NORFOLK COUNTY,	88,321	41	71	47	46	52	37	30	28	28	33	413	4·68
Bellingham,	1,247	1	-	-	1	2	1	-	-	-	1	6	4·81
Braintree,	4,156	2	10	3	2	6	1	3	2	2	2	33	7·94
Brookline,	6,675	1	2	-	4	8	3	-	1	7	1	27	4·04
Canton,	4,192	1	1	4	4	1	3	1	2	1	1	19	4·53
Cohasset,	2,197	-	-	3	-	-	-	-	-	2	1	6	2·73
Dedham,	5,756	3	7	3	4	4	3	1	1	4	1	31	9·59
Dover,	650	-	1	-	-	1	1	-	-	-	1	4	6·15
Foxborough,	3,168	2	2	-	1	-	-	-	1	-	2	8	2·52

TABLE 83. — *Deaths from Typhoid Fever, &c.* — Continued.

	Population, Census 1875.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Ten Years. 1871-1880.	Total Deaths per 1,000, Census 1875.
Norfolk Co. — Con.													
Franklin, . . .	2,983	–	1	1	–	2	1	–	1	–	1	7	2·37
Holbrook, . . .	1,726	–	3	1	1	–	–	1	1	1	–	8	4·63
Hyde Park, . . .	6,316	3	4	2	3	4	1	4	–	1	3	25	3·95
Medfield, . . .	1,163	1	3	1	–	–	–	1	2	1	–	9	7·75
Medway, . . .	4,242	–	1	3	4	5	3	3	–	–	2	21	4·95
Milton, . . .	2,738	–	–	3	1	2	–	2	2	–	–	10	3·65
Needham, . . .	4,548	4	2	2	1	3	2	2	2	1	–	19	4·17
Norfolk, . . .	920	2	2	1	1	1	–	–	1	–	–	8	8·69
Norwood, . . .	1,749	–	2	1	1	–	–	–	–	–	2	6	3·41
Quincy, . . .	9,155	4	5	4	3	3	9	2	3	1	6	40	4·36
Randolph, . . .	4,064	4	5	5	1	1	3	3	2	–	2	26	6·39
Sharon, . . .	1,330	1	3	–	–	2	–	–	1	–	1	8	6·01
Stoughton, . . .	4.842	4	7	–	1	2	3	2	1	1	3	24	4·95
Walpole, . . .	2,290	1	3	–	1	1	–	–	1	1	–	8	3·49
West Roxbury, . .	–	2	5	6	–	–	–	–	–	–	–	13	–
Weymouth, . . .	9,819	5	4	7	6	2	1	4	3	4	3	39	3·97
Wrentham, . . .	2,395	2	3	3	6	2	2	1	1	1	–	21	8·76
PLYMOUTH COUNTY,	69,362	50	62	71	55	42	35	25	22	25	38	425	6·12
Abington, . . .	3,241	4	7	10	3	2	2	2	1	–	2	33	10·18
Bridgewater, . . .	3,969	3	4	3	7	2	–	–	1	3	3	26	6·55
(*State Workhouse*), .	–	1	3	4	5	6	1	3	–	–	2	25	–
Brockton, . . .	10,578	9	12	12	5	5	1	3	3	1	6	57	5·38
Carver, . . .	1,127	1	1	2	3	2	–	–	1	1	–	11	9·76

Duxbury, ...	2,245	4	3	2	4	2	1	2	1	2	–	21	9·35
East Bridgewater, .	2,808	2	2	1	2	1	1	–	2	–	1	12	4·27
Halifax, ...	568	1	2	–	–	1	–	–	–	–	–	4	7·04
Hanover, ...	1,801	2	3	4	1	1	1	1	–	2	1	16	8·88
Hanson, ...	1,265	3	1	1	–	1	–	1	–	–	3	10	7·90
Hingham, ...	4,654	3	2	3	1	–	4	3	–	–	1	17	3·65
Hull, ...	316	–	–	–	–	–	–	–	1	–	1	2	6·32
Kingston, ...	1,569	–	4	–	1	1	1	1	–	–	1	9	5·73
Lakeville, ...	1,061	–	1	–	2	–	–	1	1	–	–	5	4·71
Marion, ...	862	1	–	1	1	2	2	–	–	1	–	8	9·28
Marshfield, . . .	1,817	2	1	5	1	2	1	–	–	–	–	12	6·60
Mattapoisett, . .	1,361	–	1	2	–	–	1	1	–	–	1	6	4·40
Middleborough, . .	5,023	2	3	4	5	2	6	1	1	2	3	29	5·77
Pembroke, ...	1,399	–	1	5	4	1	–	–	1	–	–	12	8·57
Plymouth, ...	6,370	8	3	4	3	4	4	2	1	2	–	31	4·86
Plympton, ...	755	–	–	1	1	–	–	–	–	–	–	2	2·64
Rochester, ...	1,001	1	1	1	–	1	–	1	1	–	1	7	6·99
Rockland, ...	4,203	–	–	–	2	–	3	2	1	2	4	14	3·33
Scituate, ...	2,463	1	4	2	1	–	1	1	1	1	2	14	5·68
South Abington, . .	2,456	–	–	–	–	–	2	–	1	1	1	5	2·03
South Scituate, . .	1,818	–	1	–	1	2	1	–	1	2	3	11	6·05
Wareham, ...	2,874	–	2	4	2	3	1	–	2	3	1	18	6·26
West Bridgewater, .	1,758	2	–	–	–	1	1	–	1	2	1	8	4·55
SUFFOLK COUNTY, .	364,886	225	294	304	235	239	162	167	117	124	160	2,027	5·55
Boston, ...	341,919	216	267	283	218	227	151	162	106	120	151	1,901	5·55
Chelsea, ...	20,737	8	26	21	17	10	11	4	10	2	9	118	5·69
Revere, ...	1,603	–	1	–	–	–	–	–	1	–	–	2	1·24
Winthrop, ...	627	1	–	–	–	2	–	1	–	2	–	6	9·57

TABLE 83. — *Deaths from Typhoid Fever, &c.* — Concluded.

	Population, Census 1875.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	Ten Years. 1871-1880.	Total Deaths per 1,000, Census 1872.
WORCESTER COUNTY,	210,295	155	262	149	117	140	133	120	106	84	137	1,403	6·66
Ashburnham, . .	2,141	3	4	3	2	-	-	2	1	1	1	17	7·94
Athol, ...	4,134	7	6	4	3	-	3	3	1	1	2	30	7·25
Auburn, . . .	1,233	5	2	-	-	3	-	1	-	1	-	12	9·73
Barre, ...	2,460	2	6	2	2	3	3	2	4	1	-	25	10·16
Berlin, . . .	987	1	3	2	-	3	-	-	-	1	1	11	11·14
Blackstone, . . .	4,640	3	4	2	3	2	-	-	2	1	1	18	3·88
Bolton, . . .	987	-	6	1	1	-	-	-	1	-	-	9	9·29
Boylston, . . .	895	-	-	-	1	-	2	1	1	-	-	5	5·58
Brookfield, . . .	2,660	2	8	6	2	2	5	2	-	1	4	32	12·03
Charlton, . . .	1,852	1	1	-	2	1	-	-	-	2	1	8	4·32
Clinton, . . .	6,781	2	6	2	1	1	1	-	1	2	4	20	2·95
Dana, ...	760	-	2	1	-	-	1	-	1	-	2	7	9·21
Douglas, . . .	2,202	3	2	2	2	3	3	-	1	1	1	18	8·17
Dudley, . . .	2,653	3	-	5	3	4	2	1	-	-	4	22	8·29
Fitchburg, . . .	12,289	5	12	5	4	6	3	2	3	3	6	49	3·98
Gardner, . . .	3,730	1	1	1	2	3	2	3	1	1	5	20	5·36
Grafton, . . .	4,442	2	9	1	4	4	5	4	2	1	3	35	7·88
Hardwick, . . .	1,992	1	1	4	1	1	2	-	-	1	2	13	6·52
Harvard, . . .	1,304	1	2	-	-	1	-	-	3	2	-	9	6·90
Holden. . . .	2,180	2	1	-	-	1	5	1	5	2	5	22	10·09
Hubbardston, . .	1,440	1	4	3	-	-	4	2	-	2	1	17	11·80
Lancaster, . . .	1,957	2	1	-	-	2	-	-	1	-	2	8	4·08
Leicester, . . .	2,770	-	2	5	3	4	-	4	2	1	-	21	7·58
Leominster, . .	5,201	-	6	2	5	2	3	-	1	-	1	20	3·84
Lunenburg, . .	1,153	-	3	-	-	-	-	3	-	-	1	7	6·08

Mendon, . . .	1,176	1	1	–	1	–	–	–	–	1	–	4	8·40
Milford, . . .	9,818	8	7	9	6	8	5	7	5	6	11	72	7·33
Millbury, . . .	4,529	5	11	5	4	1	2	5	2	–	3	38	8·39
New Braintree, . .	606	–	–	1	2	–	–	–	–	2	–	5	8·25
Northborough, . .	1,398	–	–	1	–	–	1	–	1	1	2	6	4·29
Northbridge, . .	4,030	3	3	1	1	2	–	3	–	1	1	15	3·72
North Brookfield, .	3,749	7	6	5	1	6	8	1	3	–	5	42	11·20
Oakham, . . .	873	–	–	3	–	–	–	2	–	2	–	7	8·01
Oxford, . . .	2,938	–	4	3	2	1	1	1	1	–	–	13	4·42
Paxton, . . .	600	1	1	1	–	–	–		–	1	1	5	8·33
Petersham, . . .	1,203	–	4	–	–	–	–	3	–	1	–	8	6·65
Phillipston, . . .	666	–	–	–	–	2	–	1	–	–	–	3	4·50
Princeton, . . .	1,063	–	–	–	1	1	3	2	–	1	–	8	7·52
Royalston, . . .	1,260	–	3	2	2	2	1	–	–	–	2	12	9·52
Rutland, . . .	1,030	3	–	1	–	1	1	1	–	2	–	9	8·73
Shrewsbury, . .	1,524	–	–	–	1	–	–	–	2	1	1	5	3·28
Southborough, . .	1,986	1	4	1	–	1	–	–	–	1	–	8	4·02
Southbridge, . .	5,740	1	5	8	5	12	7	16	12	4	3	73	12·71
Spencer, . . .	5,451	3	4	3	4	5	3	1	5	6	3	37	6·78
Sterling, . . .	1,569	1	–	2	1	2	1	–	3	–	1	11	7 01
Sturbridge, . . .	2,213	–	2	1	–	–	3	2	4	1	3	16	7·23
Sutton, . . .	3,051	2	4	1	2	4	3	2	6	1	–	25	8·19
Templeton, . . .	2,764	3	–	–	2	1	–	4	–	–	1	11	3·98
Upton, . . .	2,125	–	1	1	1	3	–	–	1	1	1	9	4·23
Uxbridge, . . .	3,029	–	3	1	–	1	–	–	1	3	–	9	2·97
Warren, . . .	3,260	6	1	1	2	4	2	1	1	2	4	24	7·36
Webster, . . .	5,064	16	8	4	6	1	2	1	3	6	8	55	10·86
Westborough, . .	5,141	5	10	2	2	7	5	2	3	1	5	42	8·16
West Boylston, .	2,902	3	8	8	2	4	–	1	–	–	3	29	9·99
West Brookfield, .	1,903	2	1	–	–	2	–	–	–	–	–	5	2·62
Westminster, . .	1,712	2	4	2	3	2	2	–	–	1	1	17	9·93
Winchendon, . .	3,762	2	4	1	3	1	3	2	2	–	–	18	4·78
Worcester, . . .	49,317	33	71	30	22	20	36	31	20	13	31	307	6·02

TABLE 84. — *Deaths from Typhoid Fever according to Population.*

Number of Towns.	Population.	Population by Census of **1875.**	Deaths from Typhoid Fever, **1871-1880.**	Deaths per 1,000 of Population.*
341,	THE STATE,	1,651,912	10,325	6·37
1,	Boston,	341,919	1,901	5·55
4,	40,000 to 50,000,	192,183	1,209	6·28
3,	30,000 to 40,000,	98,569	802	8·13
5,	20,000 to 30,000,	114,903	616	5·36
12,	10,000 to 20,000,	160,250	1,032	6·43
30,	5,000 to 10,000.	207,707	1,079	5·19
23,	4,000 to 5,000,	100,684	666	6·51
33,	3,000 to 4,000,	116,699	867	7·42
49,	2,000 to 3,000,	119,004	789	6·63
98,	1,000 to 2,000,	145,051	900	6·20
83,	Less than 1,000,	54,943	391	7·11
74,†		51,333†		8·61†
	- -	-	73‡	-

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*In this and the preceding tables, the rates are per 1,000 for the ten years, or average annual rates per 10,000.

† Excluding the 9 towns with no deaths from Typhoid Fever.

‡ State Primary School, 5 deaths; State Workhouse, 25 deaths; State Almshouse, 43 deaths.

Whooping Cough caused 217 deaths: 210 being of children under 5 years of age. Eighteen deaths were in January; 14 in February; 20 in March; 13 in April and in May; 19 in June; 12 in July; 22 in August; 31 in September; 20 in October; 14 in November; 21 in December.

METEOROLOGY.

MONTHS.	Thermometer.				Barometer.	
	Means.	Maxima.	Minima.	Ranges.	Means.	Ranges.
January,	21·9	48·0	–2·0	50·0	30·086	1·159
February,	27·7	55·0	–5·0	60·0	30·141	1·576
March,	36·4	53·0	24·0	29·0	29·696	1·416
April,	42·8	80·0	20·0	60·0	29·816	1·168
May,	55·2	91·2	36·0	55·2	30·055	·844
June,	60·6	86·4	44·1	42·3	29·888	·727
July,	68·5	89·0	53·9	35·1	29·919	·831
August,	69·5	96·8	53·4	43·4	29·990	·763
September,	65·7	101·5	49·0	52·5	30·113	·661
October,	53·3	90·0	28·0	62·0	30·123	1·168
November,	42·4	71·0	15·0	56·0	30·136	1·197
December,	37·8	66·0	10·0	56·0	30·124	1·485
The year,	48·5	101·5	–5·0	50·1	30·007	1·842

MONTHS.	Mean Humidity.	Wind Velocity in Miles.	Inches of Rain-fall.	Days of Rain or Snow.
January,	65·5	8,372	7·21	10
February,	73·0	7,388	4·89	10
March,	76·6	9,826	9·86	15
April,	57·7	7,761	1·66	9
May,	75·9	5,530	4·16	13
June,	70.0	5,365	7·79	17
July,	73·1	4,240	2·96	10
August,	74·0	3,796	1·23	11
September,	78·8	6,342	2·50	11
October,	70·6	7,386	2·84	14
November,	74·5	7,998	3·73	12
December,	73·3	8,047	3·80	14
The year,	71·92	84,051	52·63	146

During the observations of the year, the wind was W. in 25·4 per cent. of the observations; NW., 16; SW., 15·4; E., 10; NE., 10; S., 7·4; calm, 6·4; N., 5; SE., 4·4.

Mean Monthly Temperature (Fahrenheit), 1877–81.

MONTHS.	BOSTON.				
	1877.	1878.	1879.	1880.	1881.
January,	24·2	28·3	24·5	35·0	21·9
February,	33·6	31·0	24·5	32·2	27·7
March,	35·1	39·5	33·8	33·1	36·4
April,	44·3	47·2	42·4	45·9	42·8
May,	54·9	55·3	59·4	62·7	55·2
June,	66·5	64·2	64·2	67·7	60·6
July,	69·9	72·7	69·9	71·1	68·5
August,	70·7	68·1	67·7	68·9	69·5
September,	63·9	62·9	60·8	64·1	65·7
October,	51·3	55·3	56·6	50·8	53·3
November,	43·8	39·9	39·2	37·5	42·4
December,	36·1	29·6	32·6	26·2	37·8
Average,	49·5	49·5	48·0	49·6	48·5

(TABLES)

XLth

ANNUAL REPORT

OF

BIRTHS, MARRIAGES, AND DEATHS,

REGISTERED IN

MASSACHUSETTS,

FOR THE YEAR ENDING DECEMBER 31, 1881.

TABLE I. — POPULATION, [1880.] — BIRTHS,

General Abstract, exhibiting, in Connection with the Population accord-
Deaths registered in each County and Town in Massachusetts dur-
Children Born, the Nativity of Persons Married, and the Sex and

THE STATE AND COUNTIES.	Population. United States Census, 1880.	BIRTHS.								
		Whole No.	SEX.			PARENTAGE.				
			M.	F.	U.	Am.	For.	Am. Fa. and For. Mo.	For. Fa. and Am. Mo	U.
MASSACHUSETTS, .	1,783,085	45,220	23,014	22,069	137	18.218	18,169	3,267	4,119	1,447
BARNSTABLE,	31,897	485	240	245	-	359	80	19	21	6
BERKSHIRE,	69,032	1,664	841	821	2	868	504	106	164	22
BRISTOL, .	139,040	4,093	2,045	2,031	17	1,465	2,021	272	284	51
DUKES, .	4,300	41	25	15	1	30	6	1	3	1
ESSEX, .	244,535	5,864	2,999	2,864	1	2,700	2,161	472	459	72
FRANKLIN, .	36,001	682	363	317	2	418	190	28	34	12
HAMPDEN, .	104,142	2,585	1,326	1,247	12	986	1,115	205	234	45
HAMPSHIRE,	47,232	1,005	507	494	4	467	379	59	80	20
MIDDLESEX,	317,830	8,067	4,080	3,923	64	3,084	3,360	604	784	235
NANTUCKET,	3,727	60	29	31	-	51	3	4	2	-
NORFOLK, .	96,507	2,141	1,115	1,026	-	1,048	689	182	206	16
PLYMOUTH, .	74,018	1,450	760	686	4	1,026	242	58	92	32
SUFFOLK, .	387,927	11,124	5,643	5,479	2	3,497	4,815	907	1,168	737
WORCESTER,	226,897	5,959	3,041	2,890	28	2,219	2,604	350	588	198

MARRIAGES, AND DEATHS, 1881.

ing to the United States Census of 1880, the Births, Marriages, and ing the year 1881, — distinguishing the Sex and the Parentage of Aggregate and Average Ages of the Number who Died.

MARRIAGES.						DEATHS.						
Couples.	NATIVITY.					Persons.	SEX.			No. whose Ages are registered.	AGE.	
	Am.	For.	Am. M. and For. Fe.	For. M and Am. Fe.	U.		M.	F.	U.		Agg'te.	Av'ge.
16,768	**9,745**	**3,916**	**1,673**	**1,429**	**5**	**36,458**	**18,147**	**18,296**	**15**	**36,291**	**1 176,218**	**32·41**
240	207	18	6	9	-	523	269	254	-	519	23,294	44·88
553	359	89	52	53	-	1,305	652	650	3	1,294	47,222	36·49
1,398	741	438	114	105	-	3,015	1,489	1,522	4	2,996	93,633	31·25
23	21	-	1	1	-	96	54	42	-	95	4,843	50·98
2,319	1,474	451	217	175	2	4,778	2,357	2,418	3	4,734	162,369	34·30
320	239	48	15	18	-	605	307	296	2	602	26,365	43·80
1,076	567	293	118	98	-	2,107	1,053	1,053	1	2,097	65,002	31·00
398	278	68	22	29	1	954	475	479	-	950	36,627	38·55
3,001	1,697	702	330	271	1	6,181	3,054	3,127	-	6,160	195,861	31·80
24	21	1	1	1	-	112	48	64	-	112	6,137	54·79
744	482	123	72	67	-	1,645	816	829	-	1,644	59,925	36·45
646	546	52	22	26	-	1,370	670	700	-	1,368	56,212	41·09
4,045	1,909	1,207	526	403	-	9,578	4,830	4,747	1	9,555	261,206	27·34
1,981	1,204	426	177	173	1	4,189	2,073	2,115	1	4,165	137,522	33·07

TABLE I. — *Births, Marriages, and Deaths,*

COUNTIES AND TOWNS.	Population. United States Census. 1880.	BIRTHS.								
		Whole No.	SEX.			PARENTAGE.				
			M.	F.	U.	Am.	For.	Am Fa. and For. M.	For. Fa. and Am. M.	U.
BARNSTABLE, .	31,897	485	240	245	–	359	80	19	21	6
Barnstable, .	4,242	45	22	23	–	42	–	3	–	–
Brewster, . .	1,144	19	10	9	–	16	–	1	2	–
Chatham, . .	2,250	35	23	12	–	35	–	–	–	–
Dennis, . .	3,288	43	21	22	–	38	1	–	2	2
Eastham, . .	692	9	4	5	–	5	2	–	1	1
Falmouth, . .	2,422	34	17	17	–	27	6	–	–	1
Harwich, . .	3,265	30	15	15	–	27	–	–	2	1
Mashpee, . .	346	12	6	6	–	12	–	–	–	–
Orleans, . .	1,294	11	7	4	–	11	–	–	–	–
Provincetown, .	4,346	110	51	59	–	37	58	6	9	–
Sandwich, . .	3,543	66	32	34	–	53	6	4	3	–
Truro, . .	1,017	20	12	8	–	11	6	1	1	1
Wellfleet, . .	1,875	25	11	14	–	20	1	3	1	–
Yarmouth, . .	2,173	26	9	17	–	25	–	1	–	–
BERKSHIRE, .	69,032	1,664	841	821	2	868	504	106	164	22
Adams, . .	5,591	228	108	120	–	63	109	23	32	1
Alford, . .	348	13	10	3	–	12	–	–	–	1
Becket, . .	1,123	14	10	4	–	8	4	–	2	–
Cheshire, . .	1,537	42	12	30	–	22	10	3	7	–
Clarksburg, .	724	8	6	2	–	6	–	–	2	–
Dalton, . .	2,052	50	21	29	–	25	14	4	7	–
Egremont, . .	875	18	6	11	1	17	–	–	1	–
Florida, . .	459	8	5	3	–	4	3	–	–	1
Gt. Barrington, .	4,653	86	41	45	–	51	20	5	10	–
Hancock, . .	642	21	14	7	–	18	3	–	–	–
Hinsdale, . .	1,595	42	25	17	–	23	15	1	3	–
Lanesborough, .	1,286	35	14	20	1	13	11	1	9	1
Lee, . . .	3,939	104	42	62	–	64	21	7	9	3
Lenox, . .	2,043	62	30	32	–	38	14	4	5	1
Monterey, . .	635	11	5	6	–	8	1	–	2	–
Mt. Washington,	205	2	1	1	–	2	–	–	–	–
New Ashford, .	203	4	2	2	–	3	–	–	1	–
New Marlboro', .	1,876	34	11	23	–	22	10	–	1	1
North Adams, .	10,191	287	163	124	–	141	93	23	25	5
Otis, . . .	785	15	11	4	–	11	1	2	–	1
Peru, . . .	403	4	2	2	–	3	1	–	–	–
Pittsfield, . .	13,364	301	165	136	–	135	118	20	26	2
Richmond, . .	1,124	28	14	14	–	10	10	1	6	1
Sandisfield, .	1,107	24	12	12	–	16	6	–	1	1
Savoy, . .	715	11	4	7	–	10	–	–	–	1
Sheffield, . .	2,204	30	15	15	–	23	3	2	2	–
Stockbridge, .	2,357	44	20	24	–	33	6	1	3	1
Tyringham, .	542	4	3	1	–	2	–	1	1	–
Washington, .	493	4	2	2	–	2	1	–	1	–
W. Stockbridge, .	1,923	33	19	14	–	17	7	5	4	–
Williamstown, .	3,394	85	44	41	–	55	23	3	4	–
Windsor, . .	644	12	4	8	–	11	–	–	–	1

Registered during the year 1881 — Continued.

MARRIAGES.						DEATHS.						
Couples.	NATIVITY.					Persons.	SEX.			No. whose Ages are registered.	AGE.	
	Am.	For.	Am. M. and For. Fe.	For. M and Am. Fe.	Unk.		M.	F.	Unk.		Agg'te.	Av'ge.
240	207	18	6	9	–	523	269	254	–	519	23,294	44·88
29	27	–	1	1	–	70	36	34	–	70	3,591	51·30
10	10	–	–	–	–	19	8	11	–	19	700	36·84
14	14	–	–	–	–	33	19	14	–	33	1,494	45·36
31	30	–	1	–	–	49	25	24	–	49	2,600	53·06
6	5	–	–	1	–	23	16	7	–	21	899	42·81
21	17	2	–	2	–	42	23	19	–	42	2,000	47·62
26	25	–	1	–	–	46	27	19	–	45	1,639	36·42
2	2	–	–	–	–	3	1	2	–	3	103	34·33
13	13	–	–	–	–	26	14	12	–	26	1,583	60·88
33	12	15	2	4	–	75	39	36	–	75	2,825	37·67
20	19	1	–	–	–	58	30	28	–	57	2,227	39·07
9	8	–	–	1	–	16	7	9	–	16	879	54·94
12	12	–	–	–	–	23	7	16	–	23	948	41·22
14	13	–	1	–	–	40	17	23	–	40	1,806	45·15
553	359	89	52	53	–	1,305	652	650	3	1,294	47,222	36·49
65	27	21	9	8	–	135	65	70	–	135	3,148	23·32
*	–	–	–	–	–	3	1	2	–	3	113	37·67
6	6	–	–	–	–	20	13	7	–	20	868	43·40
7	6	–	1	–	–	23	13	10	–	23	821	35·70
3	2	–	–	1	–	5	3	2	–	5	192	38·40
17	15	1	–	1	–	36	18	18	–	34	748	22·00
7	7	–	–	–	–	9	5	3	1	9	367	40·78
4	3	–	–	1	–	5	4	1	–	5	205	41·00
32	15	5	5	7	–	90	50	40	–	90	4,292	47·69
3	3	–	–	–	–	17	7	10	–	17	942	55·41
18	12	3	2	1	–	34	17	17	–	34	1,199	35·26
10	7	1	1	1	–	30	18	12	–	30	1,071	35·70
17	14	–	3	–	–	71	37	34	–	70	2,615	37·36
7	6	1	–	–	–	37	17	19	1	37	1,504	40·65
8	7	–	–	1	–	5	2	3	–	5	156	31·20
1	1	–	–	–	–	1	1	–	–	1	4	4·00
2	1	–	1	–	–	2	–	2	–	2	114	57·00
11	11	–	–	–	–	32	13	19	–	31	1,592	51·35
102	55	26	10	11	–	203	94	109	–	201	5,918	29·44
9	8	–	–	1	–	11	7	4	–	11	417	37·90
2	1	1	–	–	–	9	5	4	–	9	320	35·56
120	73	22	11	14	–	285	137	147	1	282	9,696	34·38
5	2	–	3	–	–	15	10	5	–	15	757	50·47
10	8	–	–	2	–	20	6	14	–	20	957	47·85
4	4	–	–	–	–	11	5	6	–	11	562	51·09
16	15	–	1	–	–	34	20	14	–	34	1,714	50·41
18	15	1	–	2	–	31	18	13	–	31	1,605	51·77
3	3	–	–	–	–	6	6	–	–	6	355	59·17
1	–	–	–	1	–	7	4	3	–	7	287	41·00
17	13	2	1	1	–	28	15	13	–	28	1,311	46·82
24	15	5	4	–	–	76	32	44	–	74	2,629	35·53
4	4	–	–	–	–	14	9	5	–	14	743	53·07

* None.

TABLE I. — *Births, Marriages, and Deaths,*

Counties and Towns.	Population. United States Census. 1880.	Births.								
		Whole No.	Sex.			Parentage.				
			M.	F.	U.	Am.	For.	Am. Fa. and For. M	For. Fa. and Am. M.	U.
Bristol,	139,040	4,093	2045	2031	17	1465	2021	272	284	51
Acushnet,	1,105	15	10	5	-	13	-	-	1	1
Attleborough,	11,111	354	201	151	2	154	126	31	39	4
Berkley,	927	10	2	8	-	9	-	-	1	-
Dartmouth,	3,430	68	32	36	-	51	9	2	2	4
Dighton,	1,791	31	21	10	-	21	6	2	1	1
Easton,	3,902	91	43	48	-	35	47	3	5	1
Fairhaven,	2,875	48	22	26	-	42	2	3	1	-
Fall River,	48,961	1,876	905	960	11	342	1248	142	127	17
Freetown,	1,329	20	8	12	-	17	1	2	-	-
Mansfield,	2,765	44	19	25	-	33	7	2	2	-
New Bedford,	26,845	727	375	349	3	332	292	34	56	13
Norton,	1,732	21	6	15	-	13	6	1	1	-
Raynham,	1,681	19	11	8	-	16	1	1	-	1
Rehoboth,	1,891	24	13	11	-	21	2	-	1	-
Seekonk,	1,227	21	9	12	-	16	5	-	-	-
Somerset,	2,006	46	21	25	-	26	16	2	2	-
Swanzey,	1,355	20	12	8	-	14	5	-	1	-
Taunton,	21,213	602	310	291	1	258	246	46	44	8
Westport,	2,894	56	25	31	-	52	2	1	-	1
Dukes,	4,300	41	25	15	1	30	6	1	3	1
Chilmark,	494	3	2	1	-	3	-	-	-	-
Cottage City,	672	12	8	4	-	6	3	-	2	1
Edgartown,	1,303	8	3	5	-	5	2	1	-	-
Gay Head,	161	4	1	2	1	4	-	-	-	-
Gosnold,	152	2	1	1	-	1	1	-	-	-
Tisbury,	1,518	12	10	2	-	11	-	-	1	-
Essex,	244,535	5,864	2999	2864	1	2700	2161	472	459	72
Amesbury,	3,355	112	53	58	1	54	36	10	10	2
Andover,	5,169	70	32	38	-	39	19	8	4	-
Beverly,	8,456	153	80	73	-	111	19	10	8	5
Boxford,	824	14	7	7	-	11	1	2	-	-
Bradford,	2,643	54	28	26	-	41	9	-	3	1
Danvers,	6,598	93	46	47	-	54	20	7	9	3
Essex,	1,670	20	8	12	-	14	3	1	1	1
Georgetown,	2,231	37	17	20	-	34	3	-	-	-
Gloucester,	19,329	542	279	263	-	206	216	62	56	2
Groveland,	2,227	44	23	21	-	23	16	2	3	-
Hamilton,	935	12	7	5	-	10	2	-	-	-
Haverhill,	18,472	452	231	221	-	222	155	28	42	5
Ipswich,	3,699	66	38	28	-	52	5	3	2	4
Lawrence,	39,151	1,081	579	502	-	243	669	84	77	8
Lynn,	38,274	930	473	457	-	495	253	96	77	9
Lynnfield,	686	14	10	4	-	12	1	-	1	-

Registered during the year 1881 — Continued.

MARRIAGES.						DEATHS.						
Couples.	NATIVITY.					Persons.	SEX.			No. whose Ages are registered.	AGE.	
	Am.	For.	Am. M. and For. Fe.	For. M. and Am. Fe.	Unk.		M.	F.	Unk.		Agg'te.	Av'ge.
1,398	741	438	114	105	–	3,015	1489	1522	4	2,996	93,633	31·25
6	6	–	–	–	–	10	7	3	–	9	197	21·89
122	79	24	13	6	–	229	106	123	–	225	7,350	32·67
8	7	–	–	1	–	14	4	10	–	14	542	38·71
27	25	1	–	1	–	62	37	25	–	62	2,687	43·34
18	15	1	2	–	–	28	13	15	–	28	1,569	56·04
33	25	5	2	1	–	67	36	31	–	66	2,731	41·38
17	16	–	–	1	–	55	25	30	–	55	3,219	58·53
557	189	254	60	54	–	1,251	610	641	–	1,251	28,444	22·74
6	5	1	–	–	–	30	9	21	–	30	1,272	42·40
24	22	–	2	–	–	41	22	18	1	41	2,120	51·71
263	145	84	16	18	–	540	257	281	2	534	18,471	34·59
8	6	1	–	1	–	27	14	13	–	27	1,408	52·15
12	12	–	–	–	–	24	13	11	–	24	1,109	46·21
12	12	–	–	–	–	25	10	15	–	25	1,144	45·76
8	7	–	–	1	–	24	11	13	–	21	856	40·76
21	12	6	1	2	–	37	20	16	1	37	1,244	33·62
13	10	2	–	1	–	27	12	15	–	27	1,205	44·63
217	128	59	17	18	–	478	260	218	–	474	15,704	33·13
26	25	–	1	–	–	46	23	23	–	46	2,361	51·33
23	21	–	1	1	–	96	54	42	–	95	4,843	50·98
3	3	–	–	–	–	11	7	4	–	11	728	66·18
6	6	–	–	–	–	14	8	6	–	14	582	41·57
*	–	–	–	–	–	26	12	14	–	26	1,468	56·46
1	1	–	–	–	–	2	–	2	–	1	72	72·00
6	6	–	–	–	–	1	1	–	–	1	35	35·00
7	5	–	1	1	–	42	26	16	–	42	1,958	46·62
2,319	1474	451	217	175	2	4,778	2357	2418	3	4,734	162369	34·30
35	17	10	2	6	–	63	31	32	–	63	2,294	36·41
40	24	6	7	3	–	79	42	37	–	79	4,056	51·34
79	66	3	10	–	–	154	72	82	–	153	5,865	38·33
7	6	–	1	–	–	12	2	10	–	12	738	61·50
18	17	1	–	–	–	40	15	25	–	40	1,793	44·82
54	43	4	3	4	–	198	110	88	–	197	8,770	44·52
9	7	–	–	2	–	29	12	17	–	29	1,331	45·90
15	11	–	1	3	–	29	10	19	–	29	1,412	48·69
174	84	55	14	21	–	403	229	174	–	371	9,804	26·43
15	14	–	1	–	–	40	15	25	–	39	1,602	41·08
11	8	1	1	1	–	8	3	5	–	8	253	31·62
241	166	41	18	16	–	305	142	162	1	305	10,370	34·00
32	27	3	–	2	–	74	48	26	–	74	3.631	49·05
410	154	167	43	46	–	797	363	433	1	794	20,663	26·02
454	327	54	46	26	1	757	351	406	–	756	22,969	30·38
5	5	–	–	–	–	10	7	3	–	10	448	44·80

* None.

TABLE I. — *Births, Marriages, and Deaths,*

COUNTIES AND TOWNS.	Population. United States Census. **1880.**	BIRTHS.								
		Whole No.	SEX.			PARENTAGE.				
			M.	F.	U.	Am.	For.	Am.Fa. and For. M.	For.Fa. and Am. M.	U.
Essex — Con.										
Manchester,	1,640	28	16	12	–	22	3	3	–	–
Marblehead,	7,467	166	85	81	–	122	23	11	8	2
Merrimac,	2,237	43	18	25	–	25	5	3	8	2
Methuen,	4,392	107	64	43	–	39	43	11	12	2
Middleton,	1,000	16	6	10	–	11	3	2	–	–
Nahant,	808	11	7	4	–	6	4	1	–	–
Newbury,	1,566	30	12	18	–	25	2	–	2	1
Newburyport,	13,538	382	184	198	–	210	114	23	28	7
North Andover,	3,217	68	35	33	–	19	35	5	9	–
Peabody,	9,028	229	100	129	–	77	117	14	20	1
Rockport,	3,912	110	57	53	–	51	36	13	5	5
Rowley,	1,201	15	11	4	–	14	1	–	–	–
Salem,	27,563	708	370	338	–	292	307	62	42	5
Salisbury,	4,079	92	46	46	–	60	14	2	15	1
Saugus,	2,625	52	20	32	–	31	11	3	7	–
Swampscott,	2,500	38	14	24	–	20	9	5	1	3
Topsfield,	1,165	21	8	13	–	15	2	1	3	–
Wenham,	889	12	7	5	–	8	1	–	1	2
West Newbury,	1,989	42	28	14	–	32	4	–	5	1
FRANKLIN,	36,001	682	363	317	2	418	190	28	34	12
Ashfield,	1,066	13	10	3	–	12	–	1	–	–
Bernardston,	934	10	8	2	–	9	–	1	–	–
Buckland,	1,739	29	17	12	–	14	10	3	2	–
Charlemont,	932	7	2	5	–	6	–	1	–	–
Colrain,	1,777	30	10	20	–	22	6	1	1	–
Conway,	1,760	33	10	23	–	20	7	4	2	–
Deerfield,	3,543	51	27	22	2	31	16	–	4	–
Erving,	872	22	8	14	–	11	3	3	2	3
Gill,*	733	–	–	–	–	–	–	–	–	–
Greenfield,	3,903	103	56	47	–	63	23	10	6	1
Hawley,	592	12	7	5	–	11	–	–	1	–
Heath,	560	10	6	4	–	10	–	–	–	–
Leverett,	742	8	5	3	–	8	–	–	–	–
Leyden,	507	9	4	5	–	7	1	–	1	–
Monroe,	166	4	–	4	–	4	–	–	–	–
Montague,	4,875	171	92	79	–	53	102	3	9	4
New Salem,	869	11	7	4	–	11	–	–	–	–
Northfield,	1,603	37	25	12	–	19	11	1	3	3
Orange,	3,169	52	34	18	–	47	3	–	2	–
Rowe,	502	6	2	4	–	6	–	–	–	–
Shelburne,	1,621	19	13	6	–	17	1	–	1	–
Shutesbury,	529	4	3	1	–	4	–	–	–	–
Sunderland,	755	12	5	7	–	9	2	–		1
Warwick,	713	8	5	3	–	8	–	–	–	–
Wendell,	465	7	2	5	–	7	–	–	–	–
Whately,	1,074	14	5	9	–	9	5	–	–	–

* No return received.

Registered during the year 1881 — Continued.

MARRIAGES.						DEATHS.						
Couples.	NATIVITY.					Persons.	SEX.			No. whose Ages are registered.	AGE.	
	Am.	For.	Am. M. and For. Fe.	For. M. and Am. Fe.	Unk.		M.	F.	Unk.		Agg'te.	Av'ge.
10	8	–	1	1	–	35	18	17	–	35	1,923	55·00
74	62	4	4	4	–	158	77	81	–	157	5,462	34·79
11	9	–	1	1	–	30	16	14	–	30	1,211	40·37
22	14	4	3	1	–	74	36	38	–	74	2,495	33·72
9	9	–	–	–	–	24	10	14	–	24	1,208	50·33
*	–	–	–	–	–	11	4	7	–	11	410	37·27
17	17	–	–	–	–	24	7	17	–	24	945	39·37
132	91	16	18	7	–	307	148	159	–	306	13,392	43·76
20	12	1	3	4	–	34	23	11	–	34	1,260	37·06
68	40	14	7	7	–	148	82	66	–	148	4,588	31·00
31	22	3	3	3	–	81	51	30	–	78	3,250	41·67
13	13	–	–	–	–	19	11	8	–	19	965	50·79
214	119	57	26	12	–	609	303	306	–	609	19,747	32·43
29	28	1	–	–	–	85	45	40	–	85	3,620	42·59
16	10	2	1	2	1	40	20	20	–	40	1,690	42·25
20	14	3	2	1	–	39	23	16	–	39	1,157	29·67
11	10	1	–	–	–	22	10	12	–	22	1,222	55·55
2	2	–	–	–	–	9	1	8	–	9	248	27·56
21	18	–	1	2	–	31	20	10	1	31	1,577	50·87
320	239	48	15	18	–	605	307	296	2	602	26,365	43·80
5	5	–	–	–	–	21	14	7	–	21	1,211	57·67
10	10	–	–	–	–	15	7	8	–	15	728	48·53
24	18	3	1	2	–	25	11	14	–	25	987	39·48
9	6	–	1	2	–	9	6	3	–	9	562	62·44
17	10	5	1	1	–	26	13	13	–	26	866	33·31
13	8	2	2	1	–	22	12	10	–	22	999	45·41
21	17	2	1	1	–	59	31	28	–	59	2,628	44·54
10	10	–	–	–	–	12	7	4	1	12	331	27·58
–	–	–	–	–	–	–	–	–	–	–	–	–
50	30	11	5	4	–	69	31	38	–	69	3,008	43·59
3	3	–	–	–	–	12	6	6	–	12	609	50·75
3	3	–	–	–	–	5	3	2	–	5	370	74·00
5	5	–	–	–	–	16	5	11	–	15	792	52·80
3	3	–	–	–	–	10	4	6	–	10	547	54·70
1	1	–	–	–	–	1	1	–	–	1	54	54·00
58	30	21	3	4	–	98	52	46	–	96	2,395	24·95
5	5	–	–	–	–	25	12	13	–	25	1,399	55·96
17	15	1	–	1	–	38	24	14	–	38	1,949	51·29
24	23	–	–	1	–	55	28	26	1	55	2,301	41·84
3	3	–	–	–	–	7	4	3	–	7	545	77·86
11	10	1	–	–	–	31	14	17	–	31	1,430	46·19
5	5	–	–	–	–	10	5	5	–	10	278	27·80
1	–	–	1	–	–	11	3	8	–	11	639	58·09
5	5	–	–	–	–	12	4	8	–	12	784	65·33
8	7	–	–	1	–	2	1	1	–	2	83	41·50
9	7	2	–	–	–	14	9	5	–	14	870	62·14

TABLE I. — *Births, Marriages, and Deaths,*

Counties and Towns.	Population. United States Census. 1880.	Births.								
		Whole No.	Sex.			Parentage.				
			M.	F.	U.	Am.	For.	Am Fa. and For. M.	For. Fa. and Am. M.	U.
HAMPDEN,	104,142	2,585	1326	1247	12	986	1115	205	234	45
Agawam,	2,216	61	29	32	-	25	31	3	2	-
Blandford,	979	19	5	13	1	19	-	-	-	-
Brimfield,	1,203	21	9	12	-	13	6	-	2	-
Chester,	1,473	47	26	21	-	28	10	-	9	-
Chicopee,	11,286	249	110	139	-	75	137	16	16	5
Granville	1,205	18	9	8	1	12	1	1	3	1
Hampden	958	15	8	7	-	11	2	-	2	-
Holland,	302	1	1	-	-	1	-	-	-	-
Holyoke,	21,915	658	352	306	-	107	418	73	59	1
Longmeadow,	1,401	36	15	21	-	18	13	2	3	-
Ludlow,	1,526	46	27	19	-	16	23	5	2	-
Monson,	3,758	69	36	31	2	38	15	5	8	3
(St. Prim'y Sch'l),	-	2	-	2	-	-	2	-	-	-
Montgomery,	303	5	3	2	-	4	-	-	-	1
Palmer,	5,504	142	73	68	1	49	70	8	12	3
Russell,	823	16	10	6	-	10	3	2	-	1
Southwick,	1,104	12	7	5	-	10	1	1	-	-
Springfield,	33,340	869	459	406	4	391	301	74	81	22
Tolland,	452	8	5	1	2	8	-	-	-	-
Wales,	1,030	17	8	9	-	11	3	1	2	-
Westfield,	7,587	131	64	66	1	84	28	6	12	1
West Springfield,	4,149	117	63	54	-	45	43	5	17	7
Wilbraham,	1,628	26	7	19	-	11	8	3	4	-
HAMPSHIRE,	47,232	1,005	507	494	4	467	379	59	80	20
Amherst,	4,298	79	42	37	-	64	12	1	1	1
Belchertown,	2,346	53	25	28	-	36	13	1	2	1
Chesterfield,	769	12	6	6	-	11	-	-	1	-
Cummington,	881	15	6	9	-	14	-	-	-	1
Easthampton,	4,206	100	50	50	-	38	40	11	8	3
Enfield,	1,043	23	16	7	-	13	7	2	1	-
Goshen,	327	6	2	4	-	6	-	-	-	-
Granby,	753	10	6	4	-	8	1	-	1	-
Greenwich,	633	8	5	3	-	7	1	-	-	-
Hadley,	1,938	34	17	17	-	15	14	2	3	-
Hatfield,	1,495	33	21	12	-	14	16	-	3	-
Huntington,	1,236	35	11	24	-	19	6	3	5	2
Middlefield,	648	8	5	3	-	5	3	-	-	-
Northampton,	12,172	293	157	135	1	99	127	24	35	8
Pelham,	614	14	5	9	-	13	1	-	-	-
Plainfield,	457	5	2	3	-	5	-	-	-	-
Prescott,	460	6	-	6	-	6	-	-	-	-
Southampton,	3,538	11	4	4	3	7	2	-	-	2
South Hadley,	1,046	64	24	40	-	23	26	6	7	2
Ware,	4,817	142	68	74	-	33	95	5	9	-
Westhampton,	563	6	5	1	-	4	1	1	-	-
Williamsburg,	2,234	31	20	11	-	11	13	3	4	-
Worthington,	758	17	10	7	-	16	1	-	-	-

Registered during the year 1881 — Continued.

MARRIAGES.						DEATHS.						
Couples.	NATIVITY.					Persons.	SEX.			No. whose Ages are registered.	AGE.	
	Am.	For.	Am. M. and For Fe.	For. M. and Am. Fe.	Unk.		M.	F.	Unk.		Agg'te.	Av'ge.
1,076	567	293	118	98	–	2,107	1053	1053	1	2,097	65,002	31·00
16	8	6	1	1	–	42	24	18	–	42	1,854	44·14
6	6	–	–	–	–	8	4	4	–	7	345	49·29
5	5	–	–	–	–	19	4	15	–	19	868	45·68
12	10	1	–	1	–	33	21	12	–	33	1,353	41·00
129	49	49	23	8	–	217	104	115	–	215	7,054	32·81
3	2	–	–	1	–	13	7	6	–	13	626	48·15
4	3	1	–	–	–	18	8	10	–	18	831	46·17
*	–	–	–	–	–	6	3	3	–	6	311	51·83
319	92	141	43	43	–	552	271	281	–	552	11,917	21·59
12	10	–	2	–	–	33	19	14	–	32	1,367	42·72
21	13	3	–	5	–	41	26	15	–	41	1,748	42·63
24	19	4	1	–	–	66	30	36	–	66	2,644	40·06
–	–	–	–	–	–	5	3	2	–	5	44	8·80
*	–	–	–	–	–	9	6	3	–	9	167	18·56
54	27	20	6	1	–	91	51	40	–	90	2,372	26·35
7	3	2	1	1	–	25	15	10	–	25	798	31·92
11	11	–	–	–	–	17	13	4	–	16	873	54·56
334	224	54	30	26	–	636	308	327	1	634	19,650	30·99
1	1	–	–	–	–	7	6	1	–	7	352	50·29
14	11	1	1	1	–	16	7	9	–	16	835	52·19
71	53	7	7	4	–	132	59	73	–	132	4,534	34·61
21	12	3	2	4	–	85	45	40	–	85	2,853	33·56
12	8	1	1	2	–	36	19	17	–	34	1,606	47·24
398	278	68	22	29	1	954	475	479	–	950	36,627	38·55
42	37	3	–	2	–	74	30	44	–	74	3,426	46·30
25	24	1	–	–	–	61	34	27	–	61	2,602	42·66
7	7	–	–	–	–	16	7	9	–	16	770	48·12
12	11	1	–	–	–	26	14	12	–	26	1,565	60·19
30	19	7	2	2	–	81	43	38	–	79	2,462	31·16
11	4	5	1	1	–	22	9	13	–	22	1,004	45·64
2	2	–	–	–	–	3	2	1	–	3	147	49·00
3	2	–	–	1	–	11	6	5	–	11	439	39·91
2	2	–	–	–	–	14	7	7	–	14	753	53·79
10	9	–	–	1	–	29	11	18	–	29	1,396	48·14
8	6	–	–	2	–	23	14	9	–	23	1,044	45·39
9	9	–	–	–	–	28	14	14	–	28	773	27·61
4	2	2	–	–	–	10	5	5	–	10	329	32·90
109	72	22	6	8	1	224	117	107	–	224	7,699	34·37
4	4	–	–	–	–	12	5	7	–	12	625	52·08
4	4	–	–	–	–	12	7	5	–	12	790	65·83
4	4	–	–	–	–	15	7	8	–	15	902	60·13
4	4	–	–	–	–	23	13	10	–	23	1,074	46·70
31	20	5	1	5	–	91	42	49	–	91	2,495	27·53
54	21	17	11	5	–	128	65	63	–	126	3,925	31·15
3	3	–	–	–	–	9	5	4	–	9	623	69·22
16	8	5	1	2	–	31	11	20	–	31	1,310	42·26
4	4	–	–	–	–	11	7	4	–	11	474	43·09

* None.

TABLE I. — *Births, Marriages, and Deaths,*

COUNTIES AND TOWNS.	Population. United States Census. 1880.	BIRTHS.								
		Whole No.	SEX.			PARENTAGE.				
			M.	F.	U.	Am.	For.	Am. Fa. and For. M.	For. Fa. and Am. M.	U.
MIDDLESEX,	317,830	8,067	4080	3923	64	3084	3360	604	784	235
Acton,	1,797	33	18	15	-	22	7	2	-	2
Arlington,	4,100	99	41	58	-	41	42	4	11	1
Ashby,	914	12	8	4	-	10	2	-	-	-
Ashland,	2,394	75	44	31	-	27	20	5	6	17
Ayer,	1,881	52	35	17	-	25	20	3	3	1
Bedford,	931	10	2	8	-	6	4	-	-	-
Belmont,	1,615	25	10	15	-	11	11	1	2	-
Billerica,	2,000	37	18	19	-	17	14	1	4	1
Boxborough,	319	6	4	2	-	6	-	-	-	-
Burlington,	711	7	2	5	-	3	4	-	-	-
Cambridge,	52,669	1,498	775	714	9	486	678	133	168	33
Carlisle,	478	11	3	8	-	9	1	-	1	-
Chelmsford,	2,553	32	13	19	-	17	12	1	2	-
Concord,	3,922	81	49	32	-	26	37	7	8	3
Dracut,	1,595	16	7	9	-	4	8	2	2	-
Dunstable,	453	4	3	1	-	3	-	-	1	-
Everett,	4,159	96	48	48	-	57	25	5	8	1
Framingham,	6,235	151	72	79	-	76	46	15	12	2
Groton,	1,862	31	16	15	-	21	3	1	3	3
Holliston,	3,098	56	27	29	-	24	22	4	3	3
Hopkinton,	4,601	90	49	41	-	45	36	6	1	2
Hudson,	3,739	101	56	45	-	44	44	3	10	-
Lexington,	2,460	26	14	12	-	14	9	2	1	-
Lincoln,	907	17	8	9	-	3	10	1	3	-
Littleton,	994	11	5	6	-	9	1	-	1	-
Lowell,	59,475	1,831	880	900	51	485	951	128	170	97
Malden,	12,017	284	146	138	-	122	112	15	33	2
Marlborough,	10,127	259	132	127	-	92	117	16	32	2
Maynard,	2,291	68	32	36	-	13	31	7	11	6
Medford,	7,573	157	91	65	1	66	46	17	16	12
Melrose,	4,560	95	48	47	-	74	15	1	4	1
Natick,	8,479	187	89	98	-	97	51	16	21	2
Newton	16,995	396	212	184	-	160	163	28	45	-
North Reading,	900	19	6	13	-	15	2	1	1	-
Pepperell,	2,348	56	29	26	1	32	16	4	4	-
Reading,	3,181	44	18	26	-	32	5	3	3	1
Sherborn,	1,401	18	8	10	-	12	3	1	-	2
Shirley,	1,365	25	15	10	-	14	3	2	5	1
Somerville,	24,933	664	359	305	-	321	244	43	56	-
Stoneham,	4,890	100	45	55	-	58	23	2	11	6
Stow,	1,045	15	7	8	-	7	4	2	2	-
Sudbury,	1,178	15	7	8	-	10	3	1	1	-
Tewksbury,	2,179	21	7	14	-	15	5	-	1	-
(*St. Almshouse*),	-	110	59	51	-	20	48	24	8	10
Townsend,	1,967	35	19	14	2	17	7	-	6	5
Tyngsborough,	631	7	2	5	-	5	1	-	-	1
Wakefield,	5,547	120	63	57	-	45	49	15	10	1
Waltham,	11,712	317	155	162	-	119	128	24	30	16

Registered during the year 1881 — Continued.

MARRIAGES.						DEATHS.						
Couples.	NATIVITY.					Persons.	SEX.			No. whose Ages are registered.	AGE.	
	Am.	For.	Am. M. and For. Fe.	For. M. and Am. Fe.	Unk.		M.	F.	Unk.		Agg'te.	Av'ge.
3,001	1697	702	330	271	1	6,181	3054	3127	–	6,160	195861	31·80
12	8	1	2	1	–	26	14	12	–	26	1,388	53·38
30	16	8	3	3	–	79	39	40	–	79	2,104	26·63
15	14	–	1	–	–	15	10	5	–	15	803	53·53
24	17	1	3	3	–	40	18	22	–	40	1,283	32·07
17	14	1	1	1	–	38	24	14	–	38	1,521	40·03
4	4	–	–	–	–	14	9	5	–	14	648	46·29
15	9	5	1	–	–	23	11	12	–	23	661	28·74
18	13	1	3	1	–	25	7	18	–	24	1,179	49·13
6	6	–	–	–	–	6	2	4	–	6	281	46·83
9	9	–	–	–	–	8	4	4	–	8	511	63·87
490	259	121	61	49	–	1,143	544	599	–	1,136	31,059	27·34
1	1	–	–	–	–	10	5	5	–	10	527	52·70
8	7	1	–	–	–	33	17	16	–	33	1,143	34·64
31	16	8	3	4	–	69	41	28	–	69	2,637	38·22
8	8	–	–	–	–	12	8	4	–	12	489	40·75
6	6	–	–	–	–	11	6	5	–	11	757	68·82
40	29	3	6	2	–	64	28	36	–	64	1,973	30·83
41	25	9	5	2	–	94	46	48	–	94	3,836	40·81
20	19	–	1	–	–	33	17	16	–	33	1,629	49·36
28	23	1	3	1	–	54	17	37	–	54	2,079	38·50
29	20	3	1	5	–	67	34	33	–	65	2,700	41·54
33	21	5	2	5	–	75	35	40	–	75	1,958	26·11
17	13	2	1	1	–	45	18	27	–	45	1,733	38·51
6	5	–	–	1	–	12	6	6	–	12	654	54·50
3	3	–	–	–	–	15	11	4	–	15	843	56·20
802	334	291	104	73	–	1,287	607	680	–	1,287	35,311	27·44
91	69	8	10	4	–	242	118	124	–	241	7,848	32·56
105	64	24	3	14	–	170	78	92	–	170	4,222	24·84
20	7	6	4	3	–	39	21	18	–	39	1,166	29·89
60	41	10	5	4	–	112	60	52	–	111	4,050	36·49
31	21	3	5	2	–	65	27	38	–	65	2,540	39·08
84	62	7	7	8	–	137	70	67	–	137	4,328	31·59
131	75	33	14	9	–	271	135	136	–	271	8,994	33·19
8	5	1	1	1	–	16	7	9	–	16	871	54·44
17	15	1	1	–	–	40	26	14	–	38	1,980	52·11
25	19	3	2	1	–	52	23	29	–	52	2,850	54·81
6	5	–	1	–	–	24	9	15	–	24	1,046	43·58
11	8	2	1	–	–	30	17	13	–	30	1,482	49·40
191	102	42	24	23	–	460	247	213	–	459	12,595	27·44
43	34	3	4	2	–	126	47	79	–	126	4,004	31·78
10	6	–	4	–	–	20	9	11	–	20	1,114	55·70
5	3	–	1	1	–	27	13	14	–	27	1,178	43·63
9	6	2	1	–	–	35	20	15	–	32	1,401	43·78
–	–	–	–	–	–	229	160	69	–	229	8,570	37·42
16	16	–	–	–	–	39	19	20	–	38	1,795	47·24
5	5	–	–	–	–	11	5	6	–	11	553	50·27
59	37	15	5	2	–	115	61	54	–	115	3,123	27·16
130	75	27	13	14	1	200	101	99	–	198	5,821	29·40

TABLE I. — *Births, Marriages, and Deaths,*

COUNTIES AND TOWNS.	Population. United States Census. 1880.	BIRTHS.								
		Whole No.	SEX.			PARENTAGE.				
			M.	F.	U.	Am.	For.	Am. Fa. and For. M.	For. Fa. and Am. M.	U.
Middlesex—Con.										
Watertown, . .	5,426	121	61	60	–	45	51	17	7	1
Wayland, . .	1,962	40	22	18	–	25	6	4	5	–
Westford, . .	2,147	52	26	26	–	26	17	7	2	–
Weston, . .	1,448	22	15	7	–	12	6	1	3	–
Wilmington, .	933	19	7	12	–	11	5	–	3	–
Winchester, .	3,802	77	31	46	–	31	33	7	6	–
Woburn, . .	10,931	316	162	154	–	97	159	22	38	–
NANTUCKET, .	3,727	60	29	31	–	51	3	4	2	–
NORFOLK, .	96,507	2,141	1115	1026	–	1048	689	182	206	16
Bellingham, .	1,223	29	12	17	–	21	6	1	–	1
Braintree, . .	3,855	71	35	36	–	43	15	5	7	1
Brookline, . .	8,057	231	117	114	–	84	101	23	21	2
Canton, . .	4,516	76	31	45	–	31	27	8	9	1
Cohasset, . .	2,182	35	17	18	–	20	10	4	1	–
Dedham, . .	6,233	131	68	63	–	60	48	10	13	–
Dover, . .	653	14	7	7	–	9	3	2	–	–
Foxborough, .	2,950	28	16	12	–	25	2	1	–	–
Franklin, . .	4,051	72	37	35	–	37	20	7	8	–
Holbrook, . .	2,130	60	29	31	–	40	15	2	3	–
Hyde Park, .	7,088	217	110	107	–	103	75	17	18	4
Medfield, . .	1,371	22	15	7	–	15	3	3	1	–
Medway, . .	3,956	78	44	34	–	50	13	8	5	2
Milton, . .	3,206	66	40	26	–	26	27	9	4	–
Needham, . .	5,252	77	42	35	–	20	38	9	9	1
Norfolk, . .	930	18	10	8	–	8	7	1	2	–
Norwood, . .	2,345	66	41	25	–	33	21	3	9	–
Quincy, .	10,570	293	154	139	–	98	131	19	45	–
Randolph, . .	4,027	89	52	37	–	50	12	16	10	1
Sharon, . .	1,492	15	3	12	–	11	3	–	1	–
Stoughton, . .	4,875	116	64	52	–	63	31	10	11	1
Walpole, . .	2,494	42	26	16	–	22	13	2	5	–
Wellesley,* .	–	34	22	12	–	13	16	3	1	1
Weymouth, .	10,570	232	110	122	–	147	48	14	22	1
Wrentham, .	2,481	29	13	16	–	19	4	5	1	–
PLYMOUTH, .	74,018	1,450	760	686	4	1026	242	58	92	32
Abington, . .	3,697	71	38	33	–	48	14	4	4	1
Bridgewater, .	3,620	57	36	21	–	36	11	2	4	4
(*St. Workhouse*),	–	5	3	2	–	–	–	–	–	5
Brockton, . .	13,608	320	175	145	–	208	65	17	25	5
Carver, . .	1,039	18	8	10	–	12	3	2	1	–
Duxbury, . .	2,196	37	18	19	–	32	1	2	1	1
E. Bridgewater, .	2,710	44	21	23	–	32	11	–	1	–
Halifax, . .	542	13	7	6	–	12	–	–	–	1
Hanover, . .	1,897	33	16	17	–	28	3	–	1	1

* Incorporated April 6, 1881; from Needham.

Registered during the year 1881 — Continued.

MARRIAGES.						DEATHS.						
Couples.	NATIVITY.					Persons.	SEX.			No. whose Ages are registered.	AGE.	
	Am.	For.	Am. M. and For. Fe.	For. M and Am. Fe.	Unk.		M.	F.	Unk.		Agg'te.	Av'ge.
60	30	9	10	11	–	86	44	42	–	86	2,347	27·29
5	4	–	1	–	–	26	15	11	–	26	1,338	51·46
18	9	4	1	4	–	37	15	22	–	37	1,743	47·11
9	8	1	–	–	–	22	9	13	–	22	704	32·00
8	4	3	–	1	–	16	8	8	–	16	840	52·50
43	22	15	2	4	–	56	24	32	–	56	1,698	30·32
88	46	22	9	11	–	180	88	92	–	180	5,953	33·07
24	21	1	1	1	–	112	48	64	–	112	6,137	54·79
744	482	123	72	67	–	1,645	816	829	–	1,644	59,925	36·45
9	6	1	1	1	–	22	10	12	–	22	806	36·64
18	10	3	1	4	–	67	31	36	–	67	2,570	38·36
67	38	20	6	3	–	126	69	57	–	126	3,498	27·76
39	22	6	3	8	–	86	35	51	–	86	2,985	34·71
15	9	3	3	–	–	44	28	16	–	44	1,694	38·50
56	31	8	12	5	–	115	58	57	–	115	4,001	34·79
5	4	–	1	–	–	11	5	6	–	11	744	67·64
24	21	2	–	1	–	39	19	20	–	39	1,737	44·54
30	19	4	5	2	–	52	24	28	–	52	1,915	36·83
15	13	1	1	–	–	37	21	16	–	37	1,335	36·08
53	34	7	8	4	–	127	65	62	–	127	3,567	28·09
13	11	1	1	–	–	22	7	15	–	22	1,278	58·09
25	19	–	–	6	–	71	31	40	–	71	3,684	51·89
19	13	2	2	2	–	50	21	29	–	50	2,185	43·70
33	15	10	6	2	–	59	31	28	–	59	1,662	28·17
5	4	–	–	1	–	14	5	9	–	14	839	59·93
18	7	7	2	2	–	38	18	20	–	38	1,416	37·26
97	50	33	7	7	–	172	99	73	–	171	5,237	30·63
20	16	–	1	3	–	73	40	33	–	73	2,740	37·53
12	8	2	2	–	–	19	9	10	–	19	998	52·53
49	39	4	2	4	–	90	44	46	–	90	3,672	40·80
19	14	2	1	2	–	48	22	26	–	48	1,804	37·58
15	9	2	3	1	–	34	14	20	–	34	950	27·94
72	57	4	3	8	–	193	90	103	–	193	7,058	36·57
16	13	1	1	1	–	36	20	16	–	36	1,550	43·06
646	546	52	22	26	–	1,370	670	700	–	1,368	56,212	41·09
22	16	2	1	3	–	61	34	27	–	61	2,477	40·61
39	31	7	–	1	–	65	29	36	–	65	3,029	46·60
–	–	–	–	–	–	10	10	–	–	10	524	52·40
171	129	28	9	5	–	311	160	151	–	311	7,493	24·09
8	6	2	–	–	–	16	5	11	–	16	812	50·75
15	15	–	–	–	–	46	21	25	–	46	2,539	53·02
14	13	–	1	–	–	63	38	25	–	63	1,938	30·76
4	3	–	–	1	–	7	3	4	–	7	353	50·43
9	7	–	1	1	–	38	15	23	–	37	1,521	41·11

TABLE I. — *Births, Marriages, and Deaths.*

Counties and Towns.	Population. United States Census. 1880.	BIRTHS.								
		Whole No.	Sex.			Parentage.				
			M.	F.	U.	Am.	For.	Am.Fa. and For. M.	For.Fa. and Am. M.	U.
Plymouth — Con.										
Hanson, . .	1,309	28	13	15	-	25	2	-	-	1
Hingham, . .	4,485	103	51	51	1	60	27	7	9	-
Hull, . . .	383	5	2	2	1	2	1	1	-	1
Kingston, . .	1,524	29	17	12	-	25	2	-	2	-
Lakeville, . .	1,008	10	4	6	-	8	-	-	2	-
Marion, . .	958	14	8	6	-	12	-	-	2	-
Marshfield, .	1,781	26	14	11	1	23	1	1	-	1
Mattapoisett, .	1,365	13	4	9	-	13	-	-	-	-
Middleborough, .	5,237	93	52	41	-	76	12	3	2	-
Pembroke, . .	1,405	23	11	12	-	20	1	-	1	1
Plymouth, . .	7,093	149	65	84	-	107	15	6	17	4
Plympton, . .	694	7	4	3	-	7	-	-	-	-
Rochester, . .	1,043	14	7	7	-	13	-	-	-	1
Rockland, . .	4,553	97	55	42	-	58	25	6	7	1
Scituate, . .	2,466	41	22	19	-	29	7	-	3	2
South Abington,	3,024	74	43	31	-	57	13	1	3	-
South Scituate, .	1,820	34	14	19	1	24	3	4	2	1
Wareham, . .	2,896	66	39	27	-	44	15	2	4	1
W. Bridgewater,	1,665	26	13	13	-	15	10	-	1	-
SUFFOLK, .	387,927	11,124	5643	5479	2	3497	4815	907	1,168	737
Boston, . .	362,839	10,463	5306	5157	-	3158	4625	844	1,105	731
Chelsea, . .	21,782	585	305	280	-	297	169	60	59	-
Revere, . .	2,263	54	24	29	1	31	14	2	2	5
Winthrop, . .	1,043	22	8	13	1	11	7	1	2	1
WORCESTER, .	226,897	5,959	3041	2890	28	2219	2604	350	588	198
Ashburnham, .	1,666	22	10	12	-	17	2	1	1	1
Athol, . .	4,307	84	46	38	-	58	12	4	7	3
Auburn, . .	1,317	13	10	3	-	5	6	1	1	-
Barre, . .	2,419	42	24	18	-	24	10	1	7	-
Berlin, . .	977	16	7	9	-	14	2	-	-	-
Blackstone, .	4,907	99	50	49	-	26	52	7	12	2
Bolton, . .	903	10	5	5	-	7	1	1	-	1
Boylston, . .	854	14	12	2	-	3	8	1	2	-
Brookfield, . .	2,820	63	25	38	-	33	18	2	8	2
Charlton, . .	1,900	26	15	11	-	24	1	-	1	-
Clinton, . .	8,029	269	147	122	-	74	141	21	29	4
Dana, . . .	736	13	8	5	-	13	-	-	-	-
Douglas, . .	2,241	77	41	36	-	25	45	5	2	-
Dudley, . .	2,803	82	36	46	-	10	57	10	4	1
Fitchburg, . .	12,429	309	132	177	-	138	120	9	41	1
Gardner, . .	4,988	153	85	68	-	90	36	8	17	2
Grafton, . .	4,030	83	43	39	1	34	33	2	7	7
Hardwick, . .	2,233	74	41	33	-	21	37	6	9	1
Harvard, . .	1,253	11	4	7	-	7	3	-	1	-

Registered during the year 1881 — Continued.

MARRIAGES.						DEATHS.						
Couples.	Nativity.					Persons.	Sex.			No. whose Ages are registered.	Age.	
	Am.	For.	Am. M. and For. Fe.	For. M. and Am. Fe.	Unk.		M.	F.	Unk.		Agg'te.	Av'ge.
10	10	–	–	–	–	23	11	12	–	23	950	41·30
28	22	4	1	1	–	76	38	38	–	76	3,735	49·14
2	2	–	–	–	–	11	8	3	–	11	368	33·45
16	16	–	–	–	–	28	12	16	–	28	1,698	60·64
7	6	–	–	1	–	21	10	11	–	21	1,127	53·67
10	10	–	–	–	–	16	5	11	–	16	835	52·19
17	17	–	–	–	–	32	13	19	–	31	1,948	62·84
7	6	–	–	1	–	19	8	11	–	19	1,036	54·53
40	36	–	1	3	–	77	33	44	–	77	3,914	50·83
13	12	–	1	–	–	24	9	15	–	24	1,336	55·67
61	47	5	5	4	–	120	55	65	–	120	4,851	40·42
6	6	–	–	–	–	9	3	6	–	9	466	51·78
7	7	–	–	–	–	18	10	8	–	18	1,058	58·70
46	43	1	–	2	–	60	32	28	–	60	2,131	35·52
12	12	–	–	–	–	55	26	29	–	55	3,091	56·20
28	26	2	–	–	–	45	19	26	–	45	1,509	33·53
19	16	–	1	2	–	36	20	16	–	36	1,864	51·78
28	26	1	–	1	–	45	23	22	–	45	1,856	41·24
7	6	–	1	–	–	38	20	18	–	38	1,753	46·13
4,045	1909	1207	526	403	–	9,578	4830	4747	1	9,555	261206	27·34
3,813	1772	1171	490	380	–	9,075	4570	4505	–	9,053	245927	27·17
214	125	35	33	21	–	438	223	214	1	437	12955	29·65
12	8	1	2	1	–	38	25	13	–	38	1456	38·32
6	4	–	1	1	–	27	12	15	–	27	868	32·15
1,981	1204	426	177	173	1	4,189	2073	2115	1	4,165	137522	33·07
15	14	1	–	–	–	35	17	18	–	35	1,292	36·91
36	31	1	2	2	–	78	35	43	–	77	2,618	34·00
12	6	2	1	3	–	29	18	11	–	29	1,103	38·03
25	19	3	2	1	–	48	18	30	–	48	2,329	48·52
7	7	–	–	–	–	12	4	8	–	12	638	53·17
31	14	10	2	5	–	42	23	19	–	39	1,434	36·79
6	6	–	–	–	–	4	1	3	–	4	204	51·00
5	4	1	–	–	–	14	9	5	–	14	740	52·86
18	18	–	–	–	–	60	35	25	–	60	2,089	34·82
15	14	–	–	1	–	26	15	11	–	26	1,184	45·54
87	42	23	9	13	–	134	60	74	–	133	3,396	25·53
6	6	–	–	–	–	12	7	5	–	12	501	41·75
21	12	8	1	–	–	47	27	20	–	47	1,329	28·28
7	2	1	3	1	–	39	16	23	–	39	1,009	25·87
140	100	25	6	9	–	230	103	127	–	230	7,293	31·71
54	35	10	6	3	–	89	38	51	–	89	2,766	31·08
31	19	8	1	3	–	84	35	49	–	84	3,362	40·02
16	5	7	2	2	–	42	21	21	–	41	1,852	45·17
4	4	–	–	–	–	28	12	16	–	28	1,562	55·79

TABLE I. — *Births, Marriages, and Deaths,*

COUNTIES AND TOWNS.	Population. United States Census. 1880.	BIRTHS.								
		Whole No.	SEX.			PARENTAGE.				
			M.	F.	U.	Am.	For.	Am.Fa. and For. M	For.Fa and Am. M	U.
Worcester — Con.										
Holden,	2,499	71	39	32	–	25	36	3	4	3
Hubbardston,	1,386	12	6	6	–	10	1	1	–	–
Lancaster,	2,008	23	17	6	–	12	11	–	–	–
Leicester,	2,779	66	35	31	–	30	22	4	10	–
Leominster,	5,772	115	56	58	1	63	24	8	9	11
Lunenburg,	1,101	13	7	6	–	12	–	1	–	–
Mendon,	1,094	14	8	6	–	12	1	–	1	–
Milford,	9,310	183	106	75	2	68	84	6	16	9
Millbury,	4,741	139	69	70	–	53	60	9	16	1
New Braintree,	610	3	3	–	–	3	–	–	–	–
Northborough,	1,676	43	21	22	–	21	13	5	2	2
Northbridge,	4,053	119	76	43	–	30	73	5	11	–
No. Brookfield,	4,459	111	49	62	–	34	56	4	17	–
Oakham,	869	23	8	15	–	20	3	–	–	–
Oxford,	2,604	47	22	25	–	22	16	1	5	3
Paxton,	592	8	3	5	–	6	1	–	1	–
Petersham,	1,109	18	9	9	–	16	2	–	–	–
Phillipston,	621	6	3	3	–	5	–	–	–	1
Princeton,	1,100	17	5	12	–	14	2	–	1	–
Royalston,	1,192	14	11	3	–	11	1	1	1	–
Rutland,	1,059	20	9	11	–	16	2	2	–	–
Shrewsbury,	1,500	26	14	12	–	20	3	1	1	1
Southborough,	2,142	36	14	22	–	17	11	2	6	–
Southbridge,	6,464	245	120	125	–	36	196	5	6	2
Spencer,	7,466	339	160	178	1	71	196	25	46	1
Sterling,	1,414	12	5	7	–	8	3	–	1	–
Sturbridge,	2,062	43	19	24	–	11	20	3	9	–
Sutton,	3,105	83	46	33	4	29	38	4	8	4
Templeton,	2,789	51	21	28	2	34	8	2	5	2
Upton,	2,023	34	19	15	–	27	4	2	1	–
Uxbridge,	3,111	59	28	31	–	38	11	6	4	–
Warren,	3,889	130	72	58	–	39	52	15	21	3
Webster,	5,696	239	113	120	6	52	142	8	20	17
Westborough,	5,214	105	58	47	–	54	33	5	12	1
West Boylston,	2,994	97	62	35	–	22	57	10	6	2
West Brookfield,	1,917	29	13	16	–	20	5	2	1	1
Westminster,	1,652	26	17	8	1	16	4	2	2	2
Winchendon,	3,722	80	36	44	–	43	26	2	9	–
Worcester,	58,291	1,800	921	869	10	576	803	127	187	107

Registered during the year 1881 — Concluded.

MARRIAGES.						DEATHS.						
Couples.	NATIVITY.					Persons.	SEX.			No. whose Ages are registered.	AGE.	
	Am.	For.	Am. M. and or. Fe.	For. M. and Am. Fe.	Unk.		M.	F.	Unk.		Agg'te.	Av'ge.
23	13	2	3	5	-	39	25	14	-	39	1,497	38·38
14	13	-	1	-	-	25	12	13	-	25	1,421	56·84
10	8	1	-	1	-	39	15	24	-	39	1,956	50·15
20	11	1	6	2	-	61	25	36	-	61	2,210	36·23
37	29	5	-	3	-	68	37	31	-	68	2,609	38·37
8	6	-	1	1	-	24	12	12	-	24	1,507	62·79
5	5	-	-	-	-	24	8	16	-	24	1,044	43·50
62	47	8	2	5	-	150	82	68	-	149	5,353	35·93
41	21	6	9	5	-	70	38	32	-	70	2,001	28·59
2	2	-	-	-	-	10	4	6	-	10	599	59·90
22	13	4	2	3	-	32	16	16	-	32	1,024	32·00
31	11	13	5	2	-	89	52	37	-	89	2,792	31·37
44	25	8	6	5	-	77	38	39	-	77	1,710	22·21
6	5	-	1	-	-	21	10	11	-	21	1,206	57·43
18	13	2	2	1	-	44	23	21	-	43	1,874	43·58
4	4	-	-	-	-	15	8	7	-	15	615	41·00
6	5	1	-	-	-	24	15	9	-	24	1,279	53·29
3	3	-	-	-	-	17	7	10	-	17	784	46·12
7	7	-	-	-	-	24	10	14	-	24	1,293	53·87
6	4	-	2	-	-	21	13	8	-	21	1,294	61·62
6	6	-	-	-	-	10	6	4	-	10	461	46·10
8	8	-	-	-	-	39	19	20	-	39	1,871	47·97
18	10	2	4	2	-	27	14	13	-	27	900	33·33
50	19	21	7	3	-	137	61	76	-	136	3,747	27·55
61	30	9	8	14	-	140	78	62	-	140	2,393	17·07
6	4	1	-	1	-	38	17	21	-	38	1,843	48·50
22	14	5	-	3	-	45	25	20	-	45	1,409	31·31
26	9	12	-	5	-	61	30	31	-	58	2,111	36·40
33	28	3	2	-	-	67	28	39	-	67	2,739	40·88
10	7	1	1	1	-	32	16	16	-	32	1,702	53·19
23	12	4	3	4	-	32	20	12	-	32	1,584	49·50
28	19	2	5	2	-	77	39	38	-	77	2,623	34·06
90	29	41	10	9	1	140	70	70	-	139	3,011	21·66
31	25	3	3	-	-	101	41	60	-	101	2,768	27·41
30	11	12	4	3	-	55	31	24	-	55	1,423	25·87
15	13	1	1	-	-	11	4	7	-	11	481	43·73
20	18	-	2	-	-	32	11	21	-	32	1,456	45·50
43	25	9	3	6	-	68	34	34	-	68	2,867	42·16
556	314	149	49	44	-	1,150	585	564	1	1,139	31,364	27·54

TABLE II. — BIRTHS. — 1881.

Distinguishing by Counties, by Months, and by Sex, the Registered Number of Children BORN ALIVE *during the year.*

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
THE YEAR.	Totals, ...	45,220	485	1,664	4,093	101	5,864	682	2,585	1,005	8,067	2,141	1,450	11,124	5,959
	Males, ...	23,014	240	841	2,045	54	2,999	363	1,326	507	4,080	1,115	760	5,643	3,041
	Females, ...	22,069	245	821	2,031	46	2,864	317	1,247	494	3,923	1,026	686	5,479	2,890
	Unknown, ...	137	-	2	17	1	1	2	12	4	64	-	4	2	28
Jan.	Totals, ...	3,641	38	124	340	6	481	55	211	88	637	150	96	936	479
	Males, ...	1,810	13	58	176	4	230	29	102	42	321	70	56	458	251
	Females, ...	1,806	25	66	163	2	251	26	106	44	302	80	40	478	223
	Unknown, ...	25	-	-	1	-	-	-	3	2	14	-	-	-	5
Feb	Totals, ...	3,475	33	124	302	7	449	59	177	75	660	155	96	880	458
	Males, ...	1,834	9	70	155	3	230	33	99	42	343	88	54	463	245
	Females, ...	1,630	24	54	147	4	219	26	77	33	311	67	41	417	210
	Unknown, ...	11	-	-	-	-	-	-	1	-	6	-	1	-	3
March.	Totals, ...	3,703	35	132	328	10	486	34	197	110	639	192	149	890	501
	Males, ...	1,922	17	64	156	7	284	22	97	54	305	93	81	471	271
	Females, ...	1,766	18	68	172	3	202	12	97	56	329	99	67	419	224
	Unknown, ...	15	-	-	-	-	-	-	3	-	5	-	1	-	6
April.	Totals, ...	3,567	39	157	363	8	423	52	204	85	616	170	114	843	493
	Males, ...	1,798	22	76	180	3	222	28	93	46	307	91	49	425	256
	Females, ...	1,758	17	80	183	5	201	24	111	38	300	79	65	418	237
	Unknown, ...	11	-	1	-	-	-	-	-	1	9	-	-	-	-
May.	Totals, ...	3,713	34	152	323	11	485	60	212	80	685	182	99	895	495
	Males, ...	1,865	17	73	174	6	230	36	115	32	351	102	50	428	251
	Females, ...	1,837	17	79	149	4	255	24	96	48	327	80	49	467	242
	Unknown, ...	11	-	-	-	1	-	-	1	-	7	-	-	-	2

June	Totals,	3,595	33	128	329	10	498	44	232	76	631	143	105	887	479
	Males,	1,834	21	54	162	8	244	16	133	42	315	87	57	454	241
	Females,	1,747	12	74	167	2	253	28	97	34	308	56	48	433	235
	Unknown,	14	-	-	-	-	1	-	2	-	8	-	-	-	3
July.	Totals,	3,949	37	147	383	8	501	54	192	75	725	190	138	963	536
	Males,	2,057	19	80	189	4	263	25	107	40	363	103	68	531	265
	Females,	1,882	18	67	191	4	238	29	85	35	359	87	70	432	267
	Unknown,	10	-	-	3	-	-	-	-	-	3	-	-	-	4
Aug.	Totals,	4,263	61	147	394	13	531	69	238	79	732	226	158	1,058	557
	Males,	2,156	30	80	201	4	274	33	129	40	360	118	94	526	267
	Females,	2,094	31	67	187	9	257	36	109	39	368	108	63	532	288
	Unknown,	13	-	-	6	-	-	-	-	-	4	-	1	-	2
Sept.	Totals,	3,856	55	162	312	8	510	54	224	95	667	185	137	941	506
	Males,	1,925	32	83	153	3	256	29	111	41	355	97	60	448	257
	Females,	1,922	23	79	157	5	254	23	112	53	310	88	77	493	248
	Unknown,	9	-	-	2	-	-	2	1	1	2	-	-	-	1
Oct.	Totals,	3,827	46	134	360	6	471	76	217	84	673	215	125	918	502
	Males,	1,952	23	69	176	5	263	41	111	45	337	109	72	444	257
	Females,	1,873	23	64	184	1	208	35	106	39	335	106	53	474	245
	Unknown,	2	-	1	-	-	-	-	-	-	1	-	-	-	-
Nov.	Totals,	3,783	34	127	351	7	511	68	246	75	658	169	111	969	457
	Males,	1,882	19	66	165	4	243	38	101	37	341	80	51	509	228
	Females,	1,893	15	61	181	3	268	30	145	38	316	89	60	460	227
	Unknown,	8	-	-	5	-	-	-	-	-	1	-	-	-	2
Dec.	Totals,	3,843	40	130	308	7	518	57	234	83	740	164	122	944	496
	Males,	1,977	18	68	158	3	260	33	128	46	380	77	68	486	252
	Females,	1,860	22	62	150	4	258	24	106	37	357	87	53	456	244
	Unknown,	6	-	-	-	-	-	-	-	-	3	-	1	2	-
Not stated.	Totals,	5	-	-	-	-	-	-	1	-	4	-	-	-	-
	Males,	2	-	-	-	-	-	-	-	-	2	-	-	-	-
	Females,	1	-	-	-	-	-	-	-	-	1	-	-	-	-
	Unknown,	2	-	-	-	-	-	-	1	-	1	-	-	-	-

SUPPLEMENT A.

PLURALITY BIRTHS.—1881.

[Included in Tables I. and II.]

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
THE YEAR.	Totals, .	805	14	25	53	2	96	10	38	20	187	47	27	174	112
	Males, .	380	3	11	29	1	50	6	15	13	82	23	17	82	48
	Females, .	423	11	14	24	1	46	2	23	7	105	24	10	92	64
	Unknown,	2	–	–	–	–	–	2	–	–	–	–	–	–	–
Jan.	Totals, .	52	–	2	4	–	6	–	–	2	12	6	2	12	6
	Males, .	27	–	2	2	–	2	–	–	–	8	2	2	5	4
	Females, .	25	–	–	2	–	4	–	–	2	4	4	–	7	2
Feb.	Totals, .	66	–	–	6	–	12	–	4	–	14	6	–	22	2
	Males, .	31	–	–	4	–	8	–	–	–	7	2	–	9	1
	Females, .	35	–	–	2	–	4	–	4	–	7	4	–	13	1
Mar.	Totals, .	75	2	2	2	–	2	–	–	6	20	4	8	17*	12
	Males, .	34	–	–	1	–	2	–	–	3	6	4	4	7	7
	Females, .	41	2	2	1	–	–	–	–	3	14	–	4	10	5
April.	Totals, .	63	–	2	7*	–	8	2	2	2	24	4	–	6	6
	Males, .	26	–	1	1	–	6	2	1	1	9	1	–	2	2
	Females, .	37	–	1	6	–	2	–	1	1	15	3	–	4	4
May.	Totals, .	67	–	–	–	–	14	2	6	–	16	2	–	15	12
	Males, .	38	–	–	–	–	5	2	5	–	8	2	–	10	6
	Females, .	29	–	–	–	–	9	–	1	–	8	–	–	5	6
June.	Totals, .	58	2	–	4	–	10	–	6	–	12	–	–	16	8
	Males, .	25	2	–	2	–	3	–	2	–	2	–	–	9	5
	Females, .	33	–	–	2	–	7	–	4	–	10	–	–	7	3
July.	Totals, .	86	2	4	6	–	14	–	2	2	19*	10	–	13*	14
	Males, .	33	–	1	5	–	8	–	–	2	7	5	–	5	–
	Females, .	53	2	3	1	–	6	–	2	–	12	5	–	8	14

* The asterisk denotes the months in which triplets occurred.

SUPPLEMENT A — Concluded.

Year and Months.	SEX.	State.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Aug.	Totals, .	76	2	2	10	-	10	2	8	-	14	-	2	16	10
	Males, .	31	1	-	7	-	5	1	2	-	5	-	-	5	5
	Females, .	45	1	2	3	-	5	1	6	-	9	-	2	11	5
Sept.	Totals, .	60	-	5*	2	-	8	4	6	-	8	4	5*	10	8
	Males, .	29	-	2	2	-	6	1	4	-	5	-	4	2	3
	Females, .	29	-	3	-	-	2	1	2	-	3	4	1	8	5
	Unknown,	2	-	-	-	-	-	2	-	-	-	-	-	-	-
Oct.	Totals, .	70	-	4	8	-	4	-	-	-	22	2	2	18	10
	Males, .	40	-	3	5	-	1	-	-	-	12	2	1	10	6
	Females, .	30	-	1	3	-	3	-	-	-	10	-	1	8	4
Nov.	Totals, .	53	2	2	2	2	4	-	2	6	2	6	4	15*	6
	Males, .	27	-	-	-	1	2	-	1	5	1	2	3	10	2
	Females, .	26	2	2	2	1	2	-	1	1	1	4	1	5	4
Dec.	Totals, .	79	4	2	2	-	4	-	2	2	24	3*	4	14	18
	Males, .	39	-	2	-	-	2	-	-	2	12	3	3	8	7
	Females, .	40	4	-	2	-	2	-	2	-	12	-	1	6	11

NOTE. — Nine cases of triplets were registered in 1881, as follows: In Berkshire County [1 m., 2 fem.]; in Bristol [3 fem.]; in Middlesex [3 fem.]; in Norfolk [3 m.]; all the foregoing being of foreign parentage. In Plymouth County [2 m., 1 fem.] of American parentage. In Suffolk County [3 m.] and [1 m., 2 fem.] of foreign parentage; [2 m., 1 fem.] of American parentage; [3 fem.] of foreign father and American mother.

SUPPLEMENT B.

ILLEGITIMATE BIRTHS.—1881.

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
THE YEAR.	Totals, .	801	11	11	38	4	71	7	20	10	132	17	21	432	27
	Males, .	391	5	3	16	2	30	5	8	5	74	10	10	209	14
	Fem., .	404	6	8	21	1	41	2	9	5	57	7	11	223	13
	Unk., .	6	–	–	1	1	–	–	3	–	1	–	–	–	–
Jan.	Totals, .	61	1	1	2	–	4	4	6	1	8	1	1	30	2
	Males, .	28	1	1	2	–	2	2	–	1	3	–	–	15	1
	Fem., .	31	–	–	–	–	2	2	4	–	5	1	1	15	1
	Unk., .	2	–	–	–	–	–	–	2	–	–	–	–	–	–
Feb.	Totals, .	67	–	–	1	–	7	1	2	1	12	3	1	37	2
	Males, .	29	–	–	–	–	2	1	2	–	7	2	–	15	–
	Fem., .	38	–	–	1	–	5	–	–	1	5	1	1	22	2
Mar.	Totals, .	70	–	–	3	1	11	–	2	1	12	1	3	32	4
	Males, .	36	–	–	2	1	6	–	1	–	8	–	2	15	1
	Fem., .	34	–	–	1	–	5	–	1	1	4	1	1	17	3
April.	Totals, .	70	2	–	3	1	5	–	2	–	7	–	2	44	4
	Males, .	33	1	–	1	1	1	–	1	–	4	–	1	19	4
	Fem., .	37	1	–	2	–	4	–	1	–	3	–	1	25	–
May.	Totals, .	79	1	–	3	1	9	–	1	–	17	–	–	45	2
	Males, .	37	1	–	2	–	6	–	–	–	13	–	–	14	1
	Fem., .	41	–	–	1	–	3	–	1	–	4	–	–	31	1
	Unk., .	1	–	–	–	1	–	–	–	–	–	–	–	–	–
June.	Totals,	66	–	3	7	–	5	–	1	–	8	1	1	38	2
	Males, .	30	–	1	3	–	1	–	–	–	4	–	1	19	1
	Fem., .	35	–	2	4	–	4	–	1	–	3	1	–	19	1
	Unk., .	1	–	–	–	–	–	–	–	–	1	–	–	–	–
July.	Totals, .	57	1	1	3	–	4	–	1	1	6	1	1	36	2
	Males, .	34	1	–	1	–	2	–	1	–	3	1	–	23	2
	Fem., .	23	–	1	2	–	2	–	–	1	3	–	1	13	–

SUPPLEMENT B — Concluded.

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Aug.	Totals, .	71	1	1	2	-	9	-	2	2	15	2	2	32	3
	Males, .	35	-	-	-	-	3	-	2	2	7	1	1	18	1
	Fem., .	36	1	1	2	-	6	-	-	-	8	1	1	14	2
Sept.	Totals, .	48	2	-	5	-	5	-	-	-	5	1	5	24	1
	Males, .	22	-	-	3	-	1	-	-	-	3	1	2	12	-
	Fem., .	26	2	-	2	-	4	-	-	-	2	-	3	12	1
Oct.	Totals, .	64	1	1	2	-	3	-	-	2	14	3	1	37	-
	Males, .	32	-	-	-	-	2	-	-	1	7	2	-	20	-
	Fem., .	32	1	1	2	-	1	-	-	1	7	1	1	17	-
Nov.	Totals.	75	1	2	2	-	5	2	2	-	14	1	2	41	3
	Males, .	41	1	-	-	-	3	2	1	-	8	1	2	21	2
	Fem., .	33	-	2	1	-	2	-	1	-	6	-	-	20	1
	Unk., .	1	-	-	1	-	-	-	-	-	-	-	-	-	-
Dec.	Totals, .	72	1	2	5	1	4	-	-	2	14	3	2	36	2
	Males, .	34	-	1	2	-	1	-	-	1	7	2	1	18	1
	Fem., .	38	1	1	3	1	3	-	-	1	7	1	1	18	1
Not stated.	Totals, .	1	-	-	-	-	-	-	1	-	-	-	-	-	-
	Unk., .	1	-	-	-	-	-	-	1	-	-	-	-	-	-

NOTE. — Of the Illegitimate Births registered in the foregoing table, 78 occurred at the State Almshouse at Tewksbury, and 432 in the city of Boston. There were also 93 Births in the city of Boston, not included in the above table, of which the parentage was entirely unknown.

TABLE III. — STILL-BORN.

Distinguishing by Counties, by Months, and by Sex, the Registered Number of Still-births during the year

1881.

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
THE YEAR.	Totals, .	1,466	15	26	150	9	186	14	34	26	198	62	42	565	139
	Males, .	794	8	16	88	2	112	8	19	8	100	36	26	290	81
	Fem., .	585	4	7	54	–	68	2	10	6	89	23	11	265	46
	Unk., .	87	3	3	8	7	6	4	5	12	9	3	5	10	12
Jan.	Totals, .	126	1	1	12	2	16	2	2	1	16	4	3	51	15
	Males,	76	–	1	7	2	12	1	2	–	6	2	2	30	11
	Fem., .	44	–	–	3	–	4	–	–	–	9	2	1	21	4
	Unk., .	6	1	–	2	–	–	1	–	1	1	–	–	–	–
Feb.	Totals, .	133	–	5	13	1	20	–	3	3	16	6	5	50	11
	Males, .	73	–	4	7	–	10	–	2	1	10	3	2	26	8
	Fem., .	48	–	–	5	–	10	–	–	–	5	3	1	22	2
	Unk., .	12	–	1	1	1	–	–	1	2	1	–	2	2	1
Mar.	Totals, .	115	–	3	10	1	19	1	1	1	20	7	2	43	7
	Males, .	66	–	1	6	–	11	–	–	–	16	5	1	22	4
	Fem., .	39	–	–	4	–	7	–	–	–	3	2	–	20	3
	Unk., .	10	–	2	–	1	1	1	1	1	1	–	1	1	–
April.	Totals, .	99	1	–	14	2	13	1	3	3	10	5	2	36	9
	Males, .	45	1	–	8	–	7	–	–	1	1	3	1	17	6
	Fem., .	46	–	–	6	–	5	1	2	–	8	2	1	18	3
	Unk., .	8	–	–	–	2	1	–	1	2	1	–	–	1	–
May.	Totals, .	135	–	1	14	1	10	1	3	3	23	1	3	54	21
	Males, .	66	–	–	10	–	6	1	1	–	9	1	2	28	8
	Fem., .	61	–	1	4	–	4	–	1	3	11	–	–	26	11
	Unk., .	8	–	–	–	1	–	–	1	–	3	–	1	–	2
June.	Totals, .	134	2	2	14	–	13	4	6	1	16	11	5	51	9
	Males, .	82	1	1	8	–	7	3	3	–	11	8	2	33	5
	Fem., .	45	1	1	3	–	5	–	2	1	5	3	3	18	3
	Unk., .	7	–	–	3	–	1	1	1	–	–	–	–	–	1

TABLE III. — Concluded.

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
July.	Totals,	115	1	3	12	-	18	-	4	3	18	5	2	42	7
	Males, .	64	1	3	7	-	10	-	2	2	7	2	1	23	6
	Fem., .	45	-	-	4	-	7	-	2	-	11	3	-	18	-
	Unk., .	6	-	-	1	-	1	-	-	1	-	-	1	1	1
Aug.	Totals, .	131	3	2	17	-	14	1	2	2	16	4	8	49	13
	Males, .	74	1	-	9	-	11	-	2	1	10	2	7	23	8
	Fem., .	51	2	2	8	-	3	-	-	-	6	1	1	24	4
	Unk., .	6	-	-	-	-	-	1	-	1	-	1	-	2	1
Sept.	Totals, .	127	2	1	10	1	13	-	4	3	13	4	4	56	16
	Males, .	63	1	1	4	-	7	-	2	2	2	3	2	29	10
	Fem., .	59	1	-	5	-	6	-	2	-	11	1	2	26	5
	Unk., .	5	-	-	1	1	-	-	-	1	-	-	-	1	1
Oct.	Totals, .	121	1	4	14	-	12	-	4	3	11	8	3	48	13
	Males, .	71	1	4	9	-	7	-	4	1	7	4	2	25	7
	Fem., .	45	-	-	5	-	4	-	-	1	3	4	1	22	5
	Unk., .	5	-	-	-	-	1	-	-	1	1	-	-	1	1
Nov.	Totals, .	105	2	1	12	-	14	2	2	1	17	3	3	41	7
	Males, .	48	2	1	5	-	11	2	1	-	7	2	2	12	3
	Fem., .	51	-	-	7	-	3	-	1	-	9	-	1	28	2
	Unk., .	6	-	-	-	-	-	-	-	1	1	1	-	1	2
Dec.	Totals, .	125	2	3	8	1	24	2	-	2	22	4	2	44	11
	Males, .	66	-	-	8	-	13	1	-	-	14	1	2	22	5
	Fem., .	51	-	3	-	-	10	1	-	1	8	2	-	22	4
	Unk., .	8	2	-	-	1	1	-	-	1	-	1	-	-	2

TABLE IV. — MARRIAGES.

Distinguishing by Counties, and by Months, the Number of Marriages Registered during the year

1881.

YEAR AND MONTHS.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
THE YEAR, .	16,768	240	553	1398	47	2319	320	1076	398	3001	744	646	4045	1981
January, .	1,420	32	37	120	6	168	24	133	29	227	60	36	364	184
February, .	1,273	16	38	118	–	161	30	89	28	222	63	45	327	136
March, .	788	13	36	67	4	123	26	40	22	144	34	35	173	71
April, . .	1,212	15	41	86	–	168	26	56	36	232	49	50	321	132
May, . .	1,438	15	42	125	9	199	38	95	36	238	55	59	340	187
June, . .	1,644	21	46	136	3	244	34	119	35	292	56	56	400	202
July, . .	1,144	16	35	88	–	166	15	73	24	208	61	50	280	128
August, .	1,101	13	36	98	6	145	15	85	19	200	54	35	253	142
September, .	1,471	13	56	127	4	205	20	100	44	283	62	52	336	169
October, .	1,745	21	69	141	7	225	25	100	36	346	83	58	441	193
November, .	2,092	40	70	186	3	295	28	104	52	368	97	101	495	253
December, .	1,434	25	46	106	4	220	39	82	37	238	70	69	315	183
Unknown, .	6	–	1	–	1	–	–	–	–	3	–	–	–	1

TABLE V. — MARRIAGES.

Exhibiting the Social Condition and Ages, respectively, of Parties Married during the year

1881.

AGGREGATE — Of all Conditions.

AGE OF MALES.	AGE OF FEMALES.															
	All Ages.	Under 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	Over 80	Unknown.
ALL AGES,	16,768	2,821	7,715	3,695	1,172	621	319	173	88	54	34	20	4	-	-	52
Under 20, .	337	226	105	4	1	-	-	-	-	-	-	-	-	-	-	1
20 to 25, .	6,195	1,788	3,820	526	39	12	1	1	-	-	-	-	-	-	-	8
25 to 30, .	5,459	636	2,736	1,796	219	58	9	2	1	-	-	-	-	-	-	2
30 to 35, .	2,166	113	744	835	379	76	11	-	3	-	1	-	-	-	-	4
35 to 40, .	1,080	39	190	337	273	179	48	11	1	-	-	-	-	-	-	2
40 to 45, .	530	8	74	110	124	121	70	17	3	1	1	-	-	-	-	1
45 to 50, .	331	5	27	48	66	84	54	37	9	1	-	-	-	-	-	-
50 to 55, .	223	1	9	22	38	48	57	25	16	5	1	-	-	-	-	1
55 to 60, .	175	1	3	12	15	29	32	43	24	15	1	-	-	-	-	-
60 to 65, .	102	2	3	3	9	7	22	11	15	13	11	6	-	-	-	-
65 to 70, .	74	1	-	1	5	6	9	17	9	9	12	3	2	-	-	-
70 to 75, .	35	-	1	-	1	1	5	4	4	7	4	7	1	-	-	-
75 to 80, .	17	-	-	-	1	-	1	4	2	3	2	3	1	-	-	-
Over 80, .	4	-	-	-	-	-	-	1	1	-	1	1	-	-	-	-
Unknown,.	40	1	3	1	2	-	-	-	-	-	-	-	-	-	-	33

(A.) First Marriage of both Parties.

AGE OF MALES.	All Ages.	Under 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	Over 80	Unknown.
ALL AGES,	13,490	2,681	7,049	2,934	570	157	39	14	5	1	3	-	-	-	-	37
Under 20, .	334	226	104	3	-	-	-	-	-	-	-	-	-	-	-	1
20 to 25, .	5,965	1,766	3,707	455	21	8	1	1	-	-	-	-	-	-	-	6
25 to 30, .	4,901	580	2,556	1,592	146	25	-	-	-	-	-	-	-	-	-	2
30 to 35, .	1,566	85	572	637	233	33	2	-	-	-	-	-	-	-	-	4
35 to 40, .	493	18	87	195	122	53	14	4	-	-	-	-	-	-	-	-
40 to 45, .	113	1	14	37	33	17	7	2	2	-	-	-	-	-	-	-
45 to 50, .	52	3	4	12	10	13	5	4	1	-	-	-	-	-	-	-
50 to 55, .	27	-	1	3	3	8	9	2	1	-	-	-	-	-	-	-
55 to 60, .	4	-	1	-	1	-	-	-	1	1	-	-	-	-	-	-
60 to 65, .	3	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-
65 to 70, .	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
70 to 75, .	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
75 to 80, .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Over 80, .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown,.	29	1	3	-	1	-	-	-	-	-	-	-	-	-	-	24

TABLE V. — Continued.

(B.) First Marriage of Male, and subsequent Marriage of Female.

AGE OF MALES.	AGE OF FEMALES.															
	ALL AGES.	Under 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	Over 80	Unknown.
ALL AGES, .	693	6	128	206	172	101	46	12	10	4	3	–	–	–	–	5
Under 20, .	3	–	1	1	1	–	–	–	–	–	–	–	–	–	–	–
20 to 25, .	145	4	65	54	17	3	–	–	–	–	–	–	–	–	–	2
25 to 30, .	238	2	40	97	58	29	9	2	1	–	–	–	–	–	–	–
30 to 35, .	141	–	16	34	61	21	6	–	2	–	1	–	–	–	–	–
35 to 40, .	93	–	6	17	26	27	13	2	1	–	–	–	–	–	–	1
40 to 45, .	38	–	–	2	5	13	12	3	1	1	1	–	–	–	–	–
45 to 50, .	14	–	–	–	2	4	3	3	2	–	–	–	–	–	–	–
50 to 55, .	8	–	–	–	2	2	3	1	–	–	–	–	–	–	–	–
55 to 60, .	5	–	–	–	–	1	–	–	3	1	–	–	–	–	–	–
60 to 65, .	4	–	–	1	–	–	–	–	–	2	1	–	–	–	–	–
65 to 70, .	2	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–
70 to 75, .	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
75 to 80, .	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Over 80, .	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Unknown, .	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2

(C.) Subsequent Marriage of the Male, but First Marriage of Female.

ALL AGES, .	1,687	132	503	434	274	182	84	47	18	6	2	2	–	–	–	3
Under 20, .	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20 to 25, .	76	17	45	13	1	–	–	–	–	–	–	–	–	–	–	–
25 to 30, .	275	51	128	86	7	–	–	–	–	–	–	–	–	–	–	–
30 to 35, .	375	28	148	133	52	13	1	–	–	–	–	–	–	–	–	–
35 to 40, .	345	20	88	97	84	46	8	1	–	–	–	–	–	–	–	1
40 to 45, .	243	7	60	55	57	42	17	4	–	–	–	–	–	–	–	1
45 to 50, .	144	2	21	26	38	31	18	7	1	–	–	–	–	–	–	–
50 to 55, .	94	1	8	14	21	23	15	7	5	–	–	–	–	–	–	–
55 to 60, .	67	1	2	6	6	20	12	14	4	2	–	–	–	–	–	–
60 to 65, .	23	1	2	2	4	2	6	1	4	–	1	–	–	–	–	–
65 to 70, .	30	1	–	1	4	5	4	9	2	2	1	1	–	–	–	–
70 to 75, .	8	–	1	–	–	–	3	1	1	1	–	1	–	–	–	–
75 to 80, .	4	–	–	–	–	–	–	2	1	1	–	–	–	–	–	–
Over 80, .	1	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Unknown, .	2	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1

Table V. — Concluded.

(D.) Subsequent Marriage of both Parties.

Age of Males.	Age of Females.															
	All Ages.	Under 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	Over 80	Unknown.
All Ages, . . .	888	2	32	120	156	181	150	100	55	43	26	18	4	–	–	1
Under 20, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20 to 25, ...	8	1	2	4	–	1	–	–	–	–	–	–	–	–	–	–
25 to 30, ...	44	–	11	21	8	4	–	–	–	–	–	–	–	–	–	–
30 to 35, ...	82	–	7	30	33	9	2	–	1	–	–	–	–	–	–	–
35 to 40, ...	149	1	9	28	41	53	13	4	–	–	–	–	–	–	–	–
40 to 45, ...	136	–	–	16	29	49	34	8	–	–	–	–	–	–	–	–
45 to 50, ...	121	–	2	10	16	36	28	23	5	1	–	–	–	–	–	–
50 to 55, ...	94	–	–	5	12	15	30	15	10	5	1	–	–	–	–	1
55 to 60, ...	99	–	–	6	8	8	20	29	16	11	1	–	–	–	–	–
60 to 65, ...	72	–	1	–	5	5	15	9	11	11	9	6	–	–	–	–
65 to 70, ...	41	–	–	–	1	–	5	7	7	7	10	2	2	–	–	–
70 to 75, ...	25	–	–	–	1	1	2	3	3	6	2	6	1	–	–	–
75 to 80, ...	13	–	–	–	1	–	1	2	1	2	2	3	1	–	–	–
Over 80, ...	3	–	–	–	–	–	–	–	1	–	1	1	–	–	–	–
Unknown, ...	1	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–

(E.) Condition of Parties not stated.

Age of Males.	All Ages.	Under 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	Over 80	Unknown.
All Ages, . . .	10	–	3	1	–	–	–	–	–	–	–	–	–	–	–	6
Under 20, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20 to 25, ...	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
25 to 30, ...	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
30 to 35, ...	2	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–
35 to 40, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
40 to 45, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
45 to 50, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
50 to 55, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
55 to 60, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
60 to 65, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
65 to 70, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
70 to 75, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
75 to 80, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Over 80, ...	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Unknown, ...	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6

TABLE VI. — DEATHS.

Distinguishing by Counties, by Months, and by Sex, the Registered Number of Persons who Died during the year

1881.

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
THE YEAR.	Totals	36458	523	1305	3015	208	4778	605	2107	954	6181	1645	1370	9578	4189
	Males	18147	269	652	1489	102	2357	307	1053	475	3054	816	670	4830	2073
	Fem.	18296	254	650	1522	106	2418	296	1053	479	3127	829	700	4747	2115
	Unk.	15	-	3	4	-	3	2	1	-	-	-	-	1	1
Jan.	Totals	3,081	29	109	267	21	368	38	166	84	500	150	108	883	358
	Males	1,569	18	55	154	8	186	21	96	43	249	78	52	425	184
	Fem.	1,512	11	54	113	13	182	17	70	41	251	72	56	458	174
	Unk.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb.	Totals	2,905	39	109	239	18	397	49	153	75	487	131	95	770	343
	Males	1,410	25	55	109	8	159	20	69	36	246	64	46	391	182
	Fem.	1,492	14	54	129	10	237	28	84	39	241	67	49	379	161
	Unk.	3	-	-	1	-	1	1	-	-	-	-	-	-	-
March.	Totals	3,139	51	116	258	16	389	43	182	81	544	156	100	829	374
	Males	1,506	22	62	115	9	185	22	86	41	247	77	50	414	176
	Fem.	1,631	29	53	143	7	203	21	96	40	297	79	50	415	198
	Unk.	2	-	1	-	-	1	-	-	-	-	-	-	-	-
April.	Totals	3,207	62	119	250	17	410	53	176	84	542	139	120	818	417
	Males	1,552	30	54	109	11	208	33	82	43	262	68	63	393	196
	Fem.	1,651	32	64	140	6	202	20	93	41	280	71	57	424	221
	Unk.	4	-	1	1	-	-	-	1	-	-	-	-	1	-
May.	Totals	2,890	43	109	218	15	409	40	167	71	504	152	95	694	373
	Males	1,396	24	52	110	6	196	19	75	27	245	76	42	344	180
	Fem.	1,494	19	57	108	9	213	21	92	44	259	76	53	350	193
	Unk.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June.	Totals	2,449	29	87	214	14	330	44	155	56	425	98	84	640	273
	Males	1,183	13	42	116	8	152	21	82	30	216	44	40	299	120
	Fem.	1,265	16	45	97	6	178	23	73	26	209	54	44	341	153
	Unk.	1	-	-	1	-	-	-	-	-	-	-	-	-	-
July.	Totals	3,033	41	102	298	8	362	68	224	91	533	120	92	771	323
	Males	1,556	18	54	148	5	191	32	125	47	267	56	46	393	174
	Fem.	1,475	23	48	150	3	170	35	99	44	266	64	46	378	149
	Unk.	2	-	-	-	-	1	1	-	-	-	-	-	-	-

TABLE VI. — Concluded.

Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Aug.	Totals	3,780	49	125	298	25	547	41	201	92	684	158	133	1008	419
	Males	1,977	29	60	158	13	288	24	101	61	355	77	63	538	210
	Fem.	1,803	20	65	140	12	259	17	100	31	329	81	70	470	209
	Unk.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sept.	Totals	3,233	36	106	271	22	463	51	173	81	525	138	157	859	351
	Males	1,629	18	46	136	7	244	19	87	34	264	77	77	455	165
	Fem.	1,604	18	60	135	15	219	32	86	47	261	61	80	404	186
	Unk.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct.	Totals	3,107	36	119	252	19	395	64	158	94	523	146	149	801	351
	Males	1,579	19	70	123	11	195	32	74	48	269	75	70	418	175
	Fem.	1,526	17	49	128	8	200	32	84	46	254	71	79	383	175
	Unk.	2	-	-	1	-	-	-	-	-	-	-	-	-	1
Nov.	Totals	2,682	57	103	213	18	327	55	158	63	418	130	124	725	291
	Males	1,325	21	46	97	7	159	28	83	28	197	58	65	382	154
	Fem.	1,357	36	57	116	11	168	27	75	35	221	72	59	343	137
	Unk.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec.	Totals	2,952	51	101	237	15	381	59	194	82	496	127	113	780	316
	Males	1,465	32	56	114	9	194	36	93	37	237	66	56	378	157
	Fem.	1,486	19	44	123	6	187	23	101	45	259	61	57	402	159
	Unk.	1	-	1	-	-	-	-	-	-	-	-	-	-	-

TABLE VII.—DEATHS BY AGE AND SEX,

Distinguishing by Age and Sex the Number of Deaths registered in each Population, distinguishing Sex, according to the U. S. Census of 1880,—and

STATE AND COUNTIES.	Population. U. S. Census, 1880.		Percentage of D'ths. to Pop.	No. of Deaths Regist'd 1881.	Und. 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 10	10 to 15
Massachusetts	1,783,085	Tot	2·04	36,458	7,389	2,094	1,115	765	607	1,500	748
	858,440	Ma.	·	18,147	4,064	1,092	592	415	285	749	351
	924,645	Fe.	·	18,296	3,310	1,002	523	350	322	751	397
	-	Un.	·	15	15	-	-	-	-	-	-
BARNSTABLE, .	31,897	Tot.	1·64	523	65	12	9	6	1	20	13
	15,508	Ma.	·	269	34	5	7	4	-	10	6
	16,389	Fe.	·	254	31	7	2	2	1	10	7
	-	Un.	·	-	-	-	-	-	-	-	-
BERKSHIRE, .	69,032	Tot.	1·89	1,305	214	61	22	26	25	37	37
	33,708	Ma.	·	652	111	30	15	12	9	24	19
	35,324	Fe.	·	650	100	31	7	14	16	13	18
	-	Un.	·	3	3	-	-	-	-	-	-
BRISTOL, . .	139,040	Tot.	2·17	3,015	681	202	101	53	46	131	65
	66,792	Ma.	·	1,489	366	101	50	28	26	69	21
	72,248	Fe.	·	1,522	311	101	51	25	20	62	44
	-	Un.	·	4	4	-	-	-	-	-	-
DUKES, . . .	4,300	Tot.	2·23	96	7	2	1	1	1	2	1
	2,104	Ma.	·	54	5	-	-	-	1	-	1
	2,196	Fe.	·	42	2	2	1	1	-	2	-
	-	Un.	·	-	-	-	-	-	-	-	-
ESSEX, . . .	244,535	Tot.	1·95	4,778	924	225	123	79	69	162	89
	116,768	Ma.	·	2,357	522	128	54	43	39	90	42
	127,767	Fe.	·	2,418	399	97	69	36	30	72	47
	-	Un.	·	3	3	-	-	-	-	-	-
FRANKLIN, . .	36,001	Tot.	1·68	605	84	17	14	6	4	19	12
	18,573	Ma.	·	307	44	5	9	5	1	6	7
	17,428	Fe.	·	296	38	12	5	1	3	13	5
	-	Un.	·	2	2	-	-	-	-	-	-
HAMPDEN, . .	104,142	Tot.	2·02	2,107	454	124	56	29	34	85	38
	49,696	Ma.	·	1,053	267	65	33	14	16	36	16
	54,446	Fe.	·	1,053	186	59	23	15	18	49	22
	-	Un.	·	1	1	-	-	-	-	-	-
HAMPSHIRE, .	47,232	Tot.	2·02	954	157	28	20	18	16	41	19
	22,678	Ma.	·	475	92	14	13	9	5	21	8
	24,554	Fe.	·	479	65	14	7	9	11	20	11
	-	Un.	·	-	-	-	-	-	-	-	-
MIDDLESEX, .	317,830	Tot.	1·94	6,181	1,307	364	182	136	106	237	128
	151,528	Ma.	·	3,054	706	194	101	65	43	119	70
	166,302	Fe.	·	3,127	601	170	81	71	63	118	58
	-	Un.	·	-	-	-	-	-	-	-	-
NANTUCKET, .	3,727	Tot.	3·01	112	8	2	-	3	-	2	1
	1,642	Ma.	·	48	3	-	-	2	-	1	-
	2,085	Fe.	·	64	5	2	-	1	-	1	1
	-	Un.	·	-	-	-	-	-	-	-	-
NORFOLK, . .	96,507	Tot.	1·70	1,645	266	86	49	34	34	83	35
	46,476	Ma.	·	816	131	49	24	17	17	46	16
	50,031	Fe.	·	829	135	37	25	17	17	37	19
	-	Un.	·	-	-	-	-	-	-	-	-
PLYMOUTH, . .	74,018	Tot.	1·85	1,370	189	48	37	24	19	70	40
	36,853	Ma.	·	670	108	18	19	14	10	43	21
	37,165	Fe.	·	700	81	30	18	10	9	27	19
	-	Un.	·	-	-	-	-	-	-	-	-
SUFFOLK, . .	387,927	Tot.	2·47	9,578	2,207	671	373	243	172	429	165
	183,995	Ma.	·	4,830	1,219	353	197	141	81	196	74
	203,932	Fe.	·	4,747	987	318	176	102	91	233	91
	-	Un.	·	1	1	-	-	-	-	-	-
WORCESTER, .	226,897	Tot.	1·85	4,189	826	252	128	107	80	182	105
	112,119	Ma.	·	2,073	456	130	70	61	37	88	50
	114,778	Fe.	·	2,115	369	122	58	46	43	94	55
	-	Un.	·	1	1	-	-	-	-	-	-

AND BY COUNTIES AND TOWNS.—1881.

County and Town in the State during the year 1881,—in Connection with the
also with the Percentage of the Registered Number of Deaths to the Population.

15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 and over.	Unknown.
1217	1911	1737	1497	1403	1282	1341	1302	1346	1476	1672	1776	1626	1372	749	290	77	166
512	902	785	639	663	641	650	663	701	731	884	893	794	623	279	109	23	107
705	1009	952	858	740	641	691	639	645	745	788	883	832	749	470	181	54	59
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	24	25	20	26	15	18	23	18	24	35	45	40	31	28	9	-	4
5	15	10	10	9	5	7	12	10	11	22	21	21	21	15	7	-	2
7	9	15	10	17	10	11	11	8	13	13	24	19	10	13	2	-	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	85	62	51	42	39	47	47	52	61	85	69	78	54	30	8	6	11
26	46	30	21	16	21	18	21	29	31	41	32	43	35	8	4	4	6
30	39	32	30	26	18	29	26	23	30	44	37	35	19	22	4	2	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	132	113	123	108	99	110	108	102	119	128	121	115	133	70	29	7	18
45	57	54	59	55	52	51	46	58	53	66	63	63	51	28	13	2	12
56	75	59	64	53	47	59	62	44	66	62	58	52	82	42	16	5	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	7	5	3	1	1	2	6	6	7	4	11	10	9	4	2	-	1
2	5	3	3	1	1	1	6	3	3	2	6	5	3	2	1	-	-
-	2	2	-	-	-	1	-	3	4	2	5	5	6	2	1	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
159	299	235	200	180	213	174	155	170	199	258	246	222	213	98	39	5	42
49	141	105	82	70	99	94	74	71	110	135	124	99	100	31	13	2	40
110	158	130	118	110	114	80	81	99	89	123	122	123	113	67	26	3	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	37	22	20	17	15	27	24	25	33	40	41	41	53	21	11	3	3
7	20	10	11	6	8	11	20	13	16	21	19	23	26	12	6	-	1
9	17	12	9	11	7	16	4	12	17	19	22	18	27	9	5	3	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
113	115	104	83	74	75	78	67	95	85	92	84	89	70	26	17	9	11
50	46	43	37	33	39	34	35	52	43	48	37	45	36	10	5	5	8
63	69	61	46	41	36	44	32	43	42	44	47	44	34	16	12	4	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	45	39	37	36	28	37	35	39	39	56	61	71	45	30	10	2	4
14	21	19	16	11	13	17	14	17	19	28	36	41	22	17	5	-	3
27	24	20	21	25	15	20	21	22	20	28	25	30	23	13	5	2	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
217	333	292	236	252	185	237	251	230	232	242	323	283	205	127	43	12	21
86	158	126	104	119	94	126	127	120	101	131	173	128	93	43	12	3	12
131	175	166	132	133	91	111	124	110	131	111	150	155	112	84	31	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	4	5	7	5	6	9	11	14	4	11	7	4	1	-
-	1	-	-	2	4	6	3	4	3	5	4	2	6	1	1	-	-
2	1	2	2	2	1	1	2	2	6	6	10	2	5	6	3	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	78	82	61	55	46	62	38	62	69	87	96	94	93	55	21	3	1
26	34	48	24	27	24	32	19	27	38	47	54	53	42	12	8	-	1
29	44	34	37	28	22	30	19	35	31	40	42	41	51	43	13	3	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	72	49	45	48	31	43	53	45	64	70	101	106	94	54	25	3	2
18	35	21	14	19	11	15	30	26	28	44	49	49	44	22	11	1	-
20	37	28	31	29	20	28	23	19	36	26	52	57	50	32	14	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
269	470	521	468	434	390	390	351	337	356	369	336	250	193	106	38	16	24
122	230	245	207	231	198	190	188	181	177	190	159	118	72	38	9	3	11
147	240	276	261	203	192	200	163	156	179	179	177	132	121	68	29	13	13
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
136	212	186	148	126	140	109	139	159	179	195	228	223	168	93	34	10	24
62	93	71	51	64	72	48	68	90	98	104	116	104	72	40	14	3	11
74	119	115	97	62	68	61	71	69	81	91	112	119	96	53	20	7	13
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop.	Persons.	Sex.					
BARNST'BLE CO.	31,897	To.	31,897	1·64	523	523	65	12	9	6	1
		Ma.	15,508			269	34	5	7	4	-
		Fe.	16,389			254	31	7	2	2	1
Barnstable,	4,242	Ma.	1,973	1·65	70	36	8	-	-	-	-
		Fe.	2,269			34	2	-	-	-	-
Brewster,	1,144	Ma.	544	1·66	19	8	-	2	-	-	-
		Fe.	600			11	1	2	1	-	-
Chatham,	2,250	Ma.	1,085	1·47	33	19	2	-	1	-	-
		Fe.	1,165			14	-	1	-	1	-
Dennis,	3,288	Ma.	1,600	1·49	49	25	2	-	-	-	-
		Fe.	1,688			24	2	1	-	-	-
Eastham,	692	Ma.	362	3·32	23	16	-	1	1	1	-
		Fe.	330			7	-	-	-	-	-
Falmouth,	2,422	Ma.	1,156	1·73	42	23	2	-	2	-	-
		Fe.	1,266			19	1	-	-	-	-
Harwich,	3,265	Ma.	1,663	1·41	46	27	4	1	-	1	-
		Fe.	1,602			19	3	-	-	-	-
Mashpee,	346	Ma.	180	·87	3	1	-	-	-	-	-
		Fe.	166			2	-	-	-	-	-
Orleans,	1,294	Ma.	604	2·01	26	14	-	-	-	-	-
		Fe.	690			12	2	-	-	-	-
Provincetown,	4,346	Ma.	2,164	1·73	75	39	11	-	2	1	-
		Fe.	2,182			36	9	-	1	1	-
Sandwich,	3,543	Ma.	1,714	1·64	58	30	3	1	-	-	-
		Fe.	1,829			28	4	1	-	-	1
Truro,	1,017	Ma.	472	1·57	16	7	-	-	-	-	-
		Fe.	545			9	-	-	-	-	-
Wellfleet,	1,875	Ma.	927	1·23	23	7	1	-	1	-	-
		Fe.	948			16	3	-	-	-	-
Yarmouth,	2,173	Ma.	1,064	1·84	40	17	1	-	-	1	-
		Fe.	1,109			23	4	2	-	-	-
BERKSHIRE CO.	69,032	To.	69,032	1·89	1,305	1,305	214	61	22	26	25
		Ma.	33,708			652	111	30	15	12	9
		Fe.	35,324			650	100	31	7	14	16
		Un.	-	-	-	3	3	-	-	-	-
Adams,	5,591	Ma.	2,662	2·41	135	65	22	5	1	2	1
		Fe.	2,929			70	20	6	1	1	1
Alford,	348	Ma.	167	·86	3	1	-	-	1	-	-
		Fe.	181			2	-	-	-	-	-
Becket,	1,123	Ma.	578	1·78	20	13	2	-	1	-	-
		Fe.	545			7	-	-	-	-	-
Cheshire,	1,537	Ma.	808	1·49	23	13	-	1	-	1	-
		Fe.	729			10	2	-	-	-	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown
20	13	12	24	25	20	26	15	18	23	18	24	35	45	40	31	28	9	–	4
10	6	5	15	10	10	9	5	7	12	10	11	22	21	21	21	15	7	–	2
10	7	7	9	15	10	17	10	11	11	8	13	13	24	19	10	13	2	–	2
–	1	–	2	–	–	1	–	2	–	1	2	7	2	2	4	1	3	–	–
–	–	1	2	4	2	2	1	3	–	3	3	2	3	2	2	1	1	–	–
–	–	–	–	–	–	2	–	–	1	1	1	–	1	–	–	–	–	–	–
–	1	–	–	–	1	–	–	1	1	–	–	–	2	1	–	–	–	–	–
–	–	–	–	1	–	1	–	2	–	–	–	2	6	3	1	–	–	–	–
2	1	–	1	2	–	1	–	1	2	–	–	1	–	1	–	–	–	–	–
–	2	–	–	2	–	–	1	–	1	1	1	2	3	5	2	3	–	–	–
2	1	1	–	–	–	2	2	1	1	–	–	2	4	–	2	3	–	–	–
2	–	1	–	1	1	1	1	–	1	–	–	–	2	–	–	2	–	–	1
–	–	–	–	1	1	–	–	1	–	–	1	–	–	1	–	1	–	–	1
3	–	–	3	–	1	1	1	–	1	–	1	–	–	2	3	2	1	–	–
1	–	–	1	1	–	2	–	1	1	1	2	1	4	2	1	–	–	–	–
4	–	2	3	1	1	–	1	1	2	2	–	–	2	–	1	1	–	–	–
–	1	3	–	1	–	1	–	–	–	1	1	–	1	2	1	3	–	–	1
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	2	–	–	–	–	1	1	2	1	3	–	4	–	–	–
1	–	–	–	–	–	1	–	–	3	–	–	1	1	1	–	1	1	–	–
–	–	1	1	3	–	2	1	1	2	1	2	4	–	1	3	1	2	–	–
2	1	–	1	1	1	2	2	1	1	–	3	2	1	3	3	1	–	–	–
1	2	1	2	–	4	1	–	1	4	3	2	1	–	2	–	1	–	–	1
–	1	–	2	2	1	2	3	1	1	–	1	2	4	–	–	2	–	–	–
–	–	–	–	1	1	–	–	–	–	–	–	–	–	2	3	–	–	–	–
1	–	1	–	1	1	–	1	–	–	–	–	1	1	2	–	–	–	–	–
–	–	–	2	–	–	–	–	–	–	–	–	–	1	1	–	–	1	–	–
–	–	–	2	1	1	–	1	–	1	3	1	–	1	2	–	–	–	–	–
–	1	–	2	–	–	–	–	–	–	–	1	4	3	–	4	–	–	–	–
1	1	1	–	1	2	2	–	1	–	–	1	1	2	2	1	1	–	–	–
37	37	56	85	62	51	42	39	47	47	52	61	85	69	78	54	30	8	6	11
24	19	26	46	30	21	16	21	18	21	29	31	41	32	43	35	8	4	4	6
13	18	30	39	32	30	26	18	29	26	23	30	44	37	35	19	22	4	2	5
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	1	2	5	1	2	2	–	1	1	2	2	4	1	4	1	–	–	1	–
2	1	9	4	3	3	2	1	2	4	–	2	3	2	1	–	2	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	–	–	–	–	–
1	–	–	–	1	2	1	–	1	–	–	–	1	1	1	1	–	–	–	–
–	–	1	–	–	–	1	1	–	–	–	–	2	–	–	2	–	–	–	–
2	1	–	2	–	–	1	–	1	–	1	–	1	1	1	–	–	–	–	–
1	1	–	2	–	–	–	–	–	–	–	–	–	–	2	1	–	1	–	–

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	SEX.		Per ct. to Pop	Persons.	Sex.					
Berkshire—Con.											
Clarksburg, .	724	Ma.	367	·69	5	3	1	-	-	1	-
		Fe.	357			2	-	-	-	-	-
Dalton, . .	2,052	Ma.	898	1·75	36	18	6	2	-	-	1
		Fe.	1,154			18	3	-	-	-	-
Egremont, .	875	Ma.	415	1·03	9	5	-	-	-	-	-
		Fe.	460			3	-	-	-	-	-
		Un.	-	-	-	1	1	-	-	-	-
Florida, . .	459	Ma.	236	1·09	5	4	1	-	-	-	-
		Fe.	223			1	-	-	-	-	-
Gt. Barrington, .	4,653	Ma.	2.216	1·93	90	50	5	2	-	1	1
		Fe.	2,437			40	5	-	-	1	-
Hancock, . .	642	Ma.	323	2·65	17	7	2	-	-	-	-
		Fe.	319			10	2	-	-	-	-
Hinsdale, . .	1,595	Ma.	773	2·14	34	17	6	-	-	-	-
		Fe.	822			17	4	1	-	-	1
Lanesborough, .	1,286	Ma.	676	2·33	30	18	5	2	-	-	-
		Fe.	610			12	1	-	-	1	-
Lee, . . .	3,939	Ma.	1,885	1·80	71	37	3	2	5	-	-
		Fe.	2,054			34	5	1	1	-	1
Lenox, . .	2,043	Ma.	1,023	1·81	37	17	2	-	1	-	-
		Fe.	1,020			19	2	-	-	-	-
		Un.	-	-	-	1	1	-	-	-	-
Monterey, . .	635	Ma.	323	·79	5	2	-	1	-	-	-
		Fe.	312			3	-	-	-	1	-
Mt. Washingt'n,	205	Ma.	106	·49	1	1	-	-	-	-	1
		Fe.	99			-	-	-	-	-	-
New Ashford, .	203	Ma.	105	·99	2	-	-	-	-	-	-
		Fe.	98			2	-	-	-	-	-
New Marlboro',	1,876	Ma.	964	1·71	32	13	-	-	-	-	-
		Fe.	912			19	1	-	-	1	-
North Adams, .	10,191	Ma.	4,985	1·99	203	94	20	7	3	3	2
		Fe.	5,206			109	15	9	3	3	4
Otis, . . .	785	Ma.	402	1·40	11	7	3	-	-	-	-
		Fe.	383			4	-	-	-	-	1
Peru, . .	403	Ma.	215	2·23	9	5	2	-	-	-	1
		Fe.	188			4	-	-	-	-	-
Pittsfield, . .	13,364	Ma.	6.308	2·13	285	137	22	5	3	2	2
		Fe.	7,056			147	28	9	-	4	5
		Un.	-	-	-	1	1	-	-	-	-
Richmond, .	1,124	Ma.	562	1·33	15	10	-	-	-	-	-
		Fe.	562			5	1	-	-	-	-
Sandisfield, .	1,107	Ma.	584	1.81	20	6	-	-	-	-	-
		Fe.	523			14	-	-	-	-	-
Savoy, . .	715	Ma	368	1·54	11	5	1	1	-	-	-
		Fe.	347			6	-	-	1	-	1

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
-	-	2	2	1	-	-	-	-	-	-	-	1	1	1	-	-	-	-	1
1	1	4	2	1	-	2	-	1	1	-	-	-	-	1	-	-	-	-	1
-	-	-	2	-	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-
-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-
-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2	2	3	-	2	-	1	-	1	5	1	5	4	7	6	2	-	-	-
-	1	-	6	1	2	1	-	1	4	4	-	4	3	4	1	2	-	-	-
-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	2	-	-	-
-	-	-	-	-	1	-	-	1	-	-	-	1	1	2	1	-	1	-	-
-	1	-	2	1	1	-	2	-	-	1	2	-	-	-	1	-	-	-	-
-	-	-	-	-	-	1	-	2	1	1	-	-	-	4	-	2	-	-	-
-	1	-	1	2	2	-	-	-	-	1	-	1	-	2	-	-	-	1	-
-	1	-	-	-	1	-	-	4	-	-	1	-	1	1	1	-	-	-	-
2	2	-	2	-	-	1	1	2	1	3	4	3	1	-	5	-	-	-	-
1	1	1	2	6	1	1	-	1	-	1	1	2	2	3	-	2	-	-	1
-	2	2	1	1	-	-	-	-	-	-	1	1	3	1	-	-	1	1	-
1	1	-	2	3	-	1	-	-	-	2	2	2	2	-	1	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
-	1	1	2	-	-	-	-	1	-	-	1	1	2	2	-	1	-	-	1
-	-	-	2	2	1	1	1	1	-	-	1	2	2	-	1	2	1	-	-
5	3	4	6	4	3	3	3	2	5	3	3	3	2	4	4	1	-	-	1
3	4	5	8	6	6	3	4	3	5	3	6	5	5	2	3	-	1	2	1
-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	1	-	-
-	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
-	-	-	-	-	1	-	-	-	1	1	-	-	1	-	-	-	-	-	-
9	3	5	7	10	4	7	9	7	5	4	8	6	4	9	2	1	1	-	2
4	3	4	4	5	7	5	6	9	5	7	10	10	5	5	2	6	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	1	1	1	2	-	-	-	1	-	1	-	-	-	3	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	2	1	1	-	-	-	-	-
-	-	1	-	-	-	-	1	-	-	-	-	1	1	2	-	-	-	-	-
-	2	1	2	1	1	1	-	-	-	-	1	3	1	-	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-

Table VII. — Continued.

Counties and Towns.	Population — 1880.			Deaths.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop.	Persons.	Sex.					
Berkshire—Con.											
Sheffield, . .	2,204	Ma.	1,114	1·54	34	20	1	-	-	-	-
		Fe.	1,090			14	2	-	-	-	-
Stockbridge, .	2,357	Ma.	1,109	1·32	31	18	-	-	-	-	-
		Fe.	1,248			13	1	1	-	-	-
Tyringham, .	542	Ma.	263	1·11	6	6	-	-	-	-	-
		Fe.	279			-	-	-	-	-	-
Washington, .	493	Me.	269	1·42	7	4	-	-	-	-	-
		Fe.	224			3	-	-	-	-	-
W. Stockbridge,	1,923	Me.	997	1·46	28	15	-	-	-	-	-
		Fe.	926			13	2	1	-	1	-
Williamstown, .	3,394	Ma.	1,651	2·24	76	32	7	2	-	2	-
		Fe.	1,743			44	5	3	1	1	2
Windsor, . .	644	Ma.	356	2·17	14	9	-	-	-	-	-
		Fe.	288			5	1	-	-	-	-
BRISTOL CO. .	139,040	To.	139,040	2·17	3,015	3,015	681	202	101	53	46
		Ma.	66,792			1,489	366	101	50	28	26
		Fe.	72,248			1,522	311	101	51	25	20
		Un.	-	-	-	4	4	-	-	-	-
Acushnet, . .	1,105	Ma.	557	·90	10	7	2	2	-	-	-
		Fe.	548			3	1	-	-	-	-
Attleborough, .	11,111	Ma.	5,581	2·06	229	106	23	7	1	1	4
		Fe.	5,530			123	15	9	3	2	1
Berkley, . .	927	Ma.	472	1·51	14	4	1	-	-	-	-
		Fe.	455			10	1	-	-	-	-
Dartmouth, .	3,430	Ma.	1,685	1·81	62	37	7	1	-	-	-
		Fe.	1,745			25	6	1	1	-	-
Dighton, . .	1,791	Ma.	875	1·56	28	13	3	1	-	-	-
		Fe.	916			15	2	1	-	-	-
Easton, . .	3,902	Ma.	2,037	1·72	67	36	3	2	2	1	-
		Fe.	1,865			31	6	-	-	-	2
Fairhaven, .	2,875	Ma.	1,345	1·91	55	25	1	1	-	2	-
		Fe.	1,530			30	2	1	-	-	-
Fall River, .	48,961	Ma.	23,163	2·56	1,251	610	206	58	22	15	11
		Fe.	25,798			641	178	51	29	17	11
Freetown, . .	1,329	Ma.	655	2·26	30	9	2	1	-	-	-
		Fe.	674			21	2	3	-	-	-
Mansfield, .	2,765	Ma.	1,317	1·48	41	22	2	-	-	-	1
		Fe.	1,448			18	1	-	-	-	-
		Un.	-	-	-	1	1	-	-	-	-
New Bedford, .	26,845	Ma.	12,371	2·01	540	257	54	12	9	6	3
		Fe.	14,474			281	49	18	8	3	2
		Un.	-	-	-	2	2	-	-	-	-
Norton, . .	1,732	Ma.	842	1·56	27	14	1	1	1	-	-
		Fe.	890			13	-	-	-	-	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
1	1	1	2	2	1	-	-	-	-	1	2	3	1	1	2	-	1	-	-
-	-	-	-	-	1	-	-	1	1	1	2	2	1	2	-	1	-	-	-
-	-	2	2	-	-	1	1	2	1	-	-	3	3	2	1	-	-	-	-
-	-	-	1	-	1	1	-	2	-	-	-	2	1	1	-	2	-	-	-
-	-	-	-	-	-	-	-	1	1	2	-	2	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	1	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
-	1	2	-	-	1	-	1	-	-	1	3	2	2	1	1	-	-	-	-
-	-	2	-	-	-	-	-	1	1	1	-	-	2	1	1	-	-	-	-
-	-	-	3	3	1	-	1	-	3	1	1	2	-	1	3	-	-	1	1
-	1	3	4	3	2	2	1	-	-	1	3	3	-	2	4	2	-	-	1
-	-	1	2	-	-	-	-	-	-	-	1	-	1	2	1	1	-	-	-
-	-	-	-	-	1	-	1	-	-	-	-	-	1	1	-	-	-	-	-
131	65	101	132	113	123	108	99	110	108	102	119	128	121	115	133	70	29	7	18
69	21	45	57	54	59	55	52	51	46	58	53	66	63	63	51	28	13	2	12
62	44	56	75	59	64	53	47	59	62	44	66	62	58	52	82	42	16	5	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
10	3	4	6	4	2	4	3	3	2	3	1	9	5	2	3	3	-	-	3
5	2	9	9	7	5	7	3	4	8	4	-	2	3	9	8	7	-	-	1
-	-	-	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-
1	1	-	-	-	1	1	1	1	-	1	1	-	-	-	-	-	-	1	-
1	-	1	-	1	1	2	2	2	1	3	4	1	2	2	1	2	3	-	-
-	1	-	-	-	1	-	1	3	4	1	-	1	-	1	2	2	-	-	-
-	-	-	1	-	-	-	-	-	-	1	-	2	1	-	1	3	-	-	-
-	-	-	-	-	-	-	-	-	-	1	-	2	-	2	4	2	1	-	-
1	-	2	1	2	3	1	2	-	-	4	1	-	1	5	-	3	1	-	1
-	-	-	2	2	2	1	1	1	1	3	1	1	1	3	4	-	-	-	-
-	1	-	-	-	-	-	-	-	-	-	2	2	4	6	3	2	1	-	-
-	-	-	1	2	2	-	1	-	2	-	4	3	6	3	2	-	1	-	-
27	9	20	26	17	24	26	19	22	18	16	14	14	13	15	13	1	3	1	-
27	16	29	37	19	24	25	19	19	18	19	22	23	15	9	23	6	4	1	-
1	-	-	1	-	-	-	-	-	-	-	-	1	1	1	-	1	-	-	-
1	1	2	-	-	-	-	1	-	-	1	1	1	1	2	4	1	-	-	-
-	-	1	-	1	4	-	-	-	-	-	5	1	3	1	2	1	-	-	-
-	-	-	2	-	1	-	1	1	1	-	1	4	1	4	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	2	7	10	12	11	10	11	11	14	13	10	13	13	9	8	1	2	1	4
13	7	9	12	9	7	13	11	11	12	9	18	12	20	7	13	9	5	3	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1	-	1	-	-	-	1	1	2	-	-	3	-	1	-	1	-	-	-
-	-	1	-	2	-	-	1	1	-	-	1	1	-	1	3	1	1	-	-

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct to Pop.	Persons.	Sex.					
Bristol—Con.											
Raynham,	1,681	Ma.	851	1·43	24	13	2	–	–	–	–
		Fe.	830			11	–	1	1	–	–
Rehoboth,	1,891	Ma.	965	1·32	25	10	–	1	1	–	–
		Fe.	926			15	–	1	–	–	–
Seekonk,	1,227	Ma.	620	1·96	24	11	2	–	1	–	–
		Fe.	607			13	4	1	–	–	–
Somerset,	2,006	Ma.	1,026	1·84	37	20	3	1	4	–	–
		Fe.	980			16	3	–	–	1	–
		Un.	–	–	–	1	1	–	–	–	–
Swanzey,	1,355	Ma.	670	1·99	27	12	1	2	–	–	–
		Fe.	685			15	1	1	–	1	–
Taunton,	21,213	Ma.	10,328	2·25	478	260	49	11	9	3	7
		Fe.	10,885			218	38	13	9	1	4
Westport,	2,894	Ma.	1,432	1·59	46	23	4	–	–	–	–
		Fe.	1,462			23	2	–	–	–	–
DUKES Co.,	4,300	To.	4,300	2·23	96	96	7	2	1	1	1
		Ma.	2,104			54	5	–	–	–	1
		Fe.	2,196			42	2	2	1	1	–
Chilmark,	494	Ma.	247	2·23	11	7	–	–	–	–	–
		Fe.	247			4	–	–	–	–	–
Cottage City,	672	Ma.	339	2·08	14	8	1	–	–	–	1
		Fe.	333			6	1	–	1	1	–
Edgartown,	1,303	Ma.	621	2·00	26	12	2	–	–	–	–
		Fe.	682			14	–	–	–	–	–
Gay Head,	161	Ma.	78	1·24	2	–	–	–	–	–	–
		Fe.	83			2	–	–	–	–	–
Gosnold,	152	Ma.	88	·66	1	1	–	–	–	–	–
		Fe.	64			–	–	–	–	–	–
Tisbury,	1,518	Ma.	731	2·77	42	26	2	–	–	–	–
		Fe.	787			16	1	2	–	–	–
ESSEX Co.,	244,535	To.	244,535	1·95	4,778	4,778	924	225	123	79	69
		Ma.	116,768			2,357	522	128	54	43	39
		Fe.	127,767			2,418	399	97	69	36	30
		Un.	–	–	–	3	3	–	–	–	–
Amesbury,	3,355	Ma.	1,607	1·88	63	31	5	1	–	–	1
		Fe.	1,748			32	5	1	1	–	–
Andover,	5,169	Ma.	2,439	1·53	79	42	4	1	1	–	–
		Fe.	2,730			37	2	–	–	–	–
Beverly,	8,456	Ma.	3,968	1·82	154	72	13	1	2	4	2
		Fe.	4,488			82	7	4	2	1	2
Boxford,	824	Ma.	427	1·46	12	2	–	–	–	–	–
		Fe.	397			10	–	–	–	–	–
Bradford,	2,643	Ma.	1,198	1·51	40	15	2	–	1	–	–
		Fe.	1,445			25	2	1	–	–	1

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
1	1	-	1	-	-	2	-	-	-	-	-	1	-	1	2	1	1	-	-
-	-	-	-	-	3	-	1	-	1	-	1	-	1	-	1	1	-	-	-
-	-	-	-	-	1	1	-	1	1	-	-	1	1	1	1	-	-	-	-
2	-	2	-	1	1	2	-	-	-	-	-	-	3	-	1	-	2	-	-
-	-	-	-	-	1	-	-	-	-	1	-	-	1	2	-	1	-	-	2
-	-	-	-	2	-	-	-	-	-	-	-	-	1	3	1	-	-	-	1
1	-	3	-	1	-	-	-	-	-	-	-	2	1	-	2	2	-	-	-
2	1	-	-	-	2	-	-	-	-	1	1	2	-	1	1	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	1	-	-	1	-	-	1	-	1	3	-	-	-	-
2	-	-	-	-	2	-	-	-	-	1	1	-	-	1	2	3	-	-	-
14	3	7	8	12	11	8	13	11	6	16	15	12	14	12	11	5	2	-	1
9	13	4	10	14	13	3	6	17	14	3	10	9	6	6	6	6	1	-	3
-	1	-	1	3	1	-	1	-	-	1	1	3	2	3	1	1	-	-	-
-	1	-	2	1	-	1	-	1	1	-	4	1	-	-	6	2	1	-	-
2	1	2	7	5	3	1	1	2	6	6	7	4	11	10	9	4	2	-	1
-	1	2	5	3	3	1	1	1	6	3	3	2	6	5	3	2	1	-	-
2	-	-	2	2	-	-	-	1	-	3	4	2	5	5	6	2	1	-	1
-	-	-	-	1	-	-	-	-	1	1	1	-	-	2	1	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	1	-	-	-	-
-	1	-	-	-	-	-	-	1	-	-	1	-	2	-	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-	-
-	-	-	2	-	1	-	-	-	2	1	1	-	1	2	-	-	-	-	-
-	-	-	1	1	-	-	-	-	-	-	3	1	1	3	3	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	2	3	2	1	1	1	-	3	1	-	2	3	1	2	1	1	-	-
2	-	-	1	1	-	-	-	1	-	2	-	-	2	1	1	1	1	-	-
162	89	159	299	235	200	180	213	174	155	170	199	258	246	222	213	98	39	5	42
90	42	49	141	105	82	70	99	94	74	71	110	135	124	99	100	31	13	2	40
72	47	110	158	130	118	110	114	80	81	99	89	123	122	123	113	67	26	3	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	2	-	3	2	1	-	5	2	2	1	1	2	1	1	-	-	-	-	-
1	-	-	4	1	1	1	3	1	-	2	2	2	2	1	3	1	-	-	-
-	1	-	8	1	-	3	1	3	2	3	3	5	4	8	3	-	1	-	-
1	-	2	2	1	1	5	1	1	1	3	-	2	3	6	4	1	1	-	-
5	1	1	1	3	3	1	3	3	5	-	3	6	5	2	5	-	2	-	1
3	1	5	3	5	4	5	4	4	1	2	8	6	6	2	5	2	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
-	-	-	1	3	-	-	-	-	-	-	-	1	-	3	2	-	-	-	-
-	-	1	2	1	-	-	-	1	1	-	4	-	1	-	1	-	-	-	-
1	-	-	1	-	1	3	-	-	3	2	1	1	3	2	3	-	-	-	-

TABLE VII. — Continued.

Counties and Towns.	Population — 1880.			Deaths.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop.	Persons.	Sex.					
Essex — Con.											
Danvers, . .	6,598	Ma.	3,180	3·00	198	110	6	1	1	1	1
		Fe.	3,418			88	5	1	-	-	-
Essex, . .	1,670	Ma.	826	1·74	29	12	2	-	-	-	-
		Fe.	844			17	2	1	-	-	-
Georgetown, .	2,231	Ma.	1,079	1·30	29	10	1	-	-	-	-
		Fe.	1,152			19	1	-	-	-	-
Gloucester, .	19,329	Ma.	10,197	2·08	403	229	49	9	7	9	3
		Fe.	9,132			174	45	11	7	8	2
Groveland, .	2,227	Ma.	1,070	1·80	40	15	4	2	-	-	-
		Fe.	1,157			25	3	-	-	-	-
Hamilton, . .	935	Ma.	476	·86	8	3	-	1	-	-	-
		Fe.	459			5	-	1	1	-	-
Haverhill, . .	18,472	Ma.	8,848	1·65	305	142	38	7	1	2	-
		Fe.	9,624			162	30	7	6	4	1
		Un.	-	-	-	1	1	-	-	-	-
Ipswich, . .	3,699	Ma.	1,783	2·00	74	48	7	3	-	-	-
		Fe.	1,916			26	2	-	-	-	-
Lawrence, .	39,151	Ma.	17,785	2·04	797	363	116	28	16	8	5
		Fe.	21,366			433	95	16	12	7	5
		Un.	-	-	-	1	1	-	-	-	-
Lynn, . .	38,274	Ma.	18,243	1·98	757	351	76	20	7	8	11
		Fe.	20,031			406	57	20	20	7	10
Lynnfield, . .	686	Ma.	339	1·46	10	7	3	-	-	-	-
		Fe.	347			3	-	-	-	-	-
Manchester, .	1,640	Ma.	771	2·13	35	18	3	1	-	-	-
		Fe.	869			17	1	1	-	-	-
Marblehead, .	7,467	Ma.	3,655	2·12	158	77	15	4	4	-	1
		Fe.	3,812			81	9	2	7	3	1
Merrimac, .	2,237	Ma.	1,169	1·34	30	16	2	-	-	-	1
		Fe.	1,068			14	-	2	-	-	-
Methuen, . .	4,392	Ma.	2,118	1·68	74	36	9	3	1	1	-
		Fe.	2,274			38	6	1	4	-	-
Middleton, .	1,000	Ma.	510	2.40	24	10	2	-	-	-	-
		Fe.	490			14	1	-	-	-	-
Nahant, . .	808	Ma.	346	1·36	11	4	1	-	1	-	-
		Fe.	462			7	-	-	1	-	-
Newbury, . .	1,566	Ma.	801	1·53	24	7	1	-	1	-	-
		Fe.	765			17	3	2	1	-	-
Newburyport, .	13,538	Ma.	6,093	2·27	307	148	26	4	3	1	3
		Fe.	7,445			159	25	3	2	1	-
No. Andover, .	3,217	Ma.	1,629	1·06	34	23	4	1	-	-	1
		Fe.	1,588			11	2	-	-	-	-
Peabody, . .	9,028	Ma.	4,539	1·64	148	82	19	8	2	1	1
		Fe.	4,489			66	12	5	2	1	1

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
3	1	1	7	4	5	9	10	7	8	4	7	10	8	9	6	1	-	-	-
6	3	1	7	6	6	6	9	3	4	3	6	6	6	4	4	1	-	-	1
1	-	-	1	-	-	-	1	1	2	1	1	-	1	1	-	-	-	-	-
-	-	1	-	1	-	-	2	3	-	1	-	-	1	2	-	1	2	-	-
-	-	-	1	1	-	-	1	-	1	-	-	1	1	-	2	1	-	-	-
1	-	1	2	1	1	1	1	1	2	2	-	1	2	-	-	2	-	-	-
11	7	1	16	8	10	4	8	7	7	4	5	6	9	5	9	3	1	-	31
5	5	6	11	13	4	6	10	5	4	4	3	9	5	6	1	3	1	-	-
1	-	-	-	-	-	1	-	-	-	2	-	-	1	-	3	-	-	-	1
1	1	-	2	-	2	3	-	-	-	3	1	6	-	2	1	-	-	-	-
-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-
-	-	1	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-
4	4	4	9	7	5	4	9	6	2	4	7	11	6	4	6	2	-	-	-
5	2	3	11	6	7	7	9	3	5	8	3	13	6	12	6	7	1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2	-	2	4	1	-	1	4	2	1	2	1	5	4	8	-	-	1	-
1	1	-	2	-	-	1	1	-	2	1	2	4	2	4	2	1	-	-	-
10	3	13	22	17	5	11	12	13	8	9	16	20	11	8	5	4	1	-	2
15	6	38	30	26	25	21	26	19	15	15	14	12	10	10	8	4	2	1	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	12	10	17	23	18	14	18	19	7	7	10	20	13	10	11	-	1	-	-
13	14	20	28	20	23	22	15	14	13	19	15	19	18	18	12	7	2	-	-
1	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-
1	-	-	-	1	-	-	-	-	1	-	2	-	7	1	1	-	-	-	-
-	-	1	1	-	-	-	1	1	-	1	1	-	-	1	3	3	1	1	-
2	2	3	6	4	4	2	2	2	5	1	4	2	6	5	2	-	-	-	1
3	1	1	8	2	3	3	5	1	4	4	3	2	10	3	1	3	2	-	-
1	-	-	-	3	1	-	1	2	-	1	-	1	2	-	-	1	-	-	-
-	-	1	-	2	1	-	1	2	-	-	1	3	-	-	1	-	-	-	-
1	-	1	4	2	-	-	-	-	-	3	3	3	2	2	-	-	1	-	-
1	-	1	2	2	2	2	3	2	-	2	1	2	1	1	4	1	-	-	-
-	-	-	2	-	-	-	-	1	-	-	-	2	-	-	3	-	-	-	-
1	1	1	-	-	1	-	1	-	-	-	1	1	-	2	2	2	-	-	-
-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1	1	-	2	1	-	-	1	-	-	-	-	-	-
-	-	1	-	-	-	-	-	-	1	-	-	-	1	-	1	1	-	-	-
-	-	1	1	-	1	-	1	-	1	1	-	1	-	1	2	1	-	-	-
4	-	5	8	4	7	3	7	7	5	3	11	9	11	11	6	5	3	1	1
-	2	8	11	8	6	4	6	6	8	3	5	5	11	12	16	10	6	1	-
1	-	-	4	2	2	1	-	2	-	-	-	1	-	3	1	-	-	-	-
-	-	-	1	-	1	-	-	1	-	-	1	2	1	2	-	-	-	-	-
3	1	1	3	4	2	2	4	3	2	5	3	7	8	1	-	1	1	-	-
4	1	2	6	5	2	2	1	1	2	2	5	4	4	2	1	1	-	-	-

Table VII. — Continued.

Counties and Towns.	Population — 1880. Persons.	Population — 1880. Sex.		Deaths. Per ct. to Pop.	Deaths. Persons.	Deaths. Sex.	Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
Essex — Con.											
Rockport, . .	3,912	Ma.	1,927	2·07	81	51	7	4	1	1	2
		Fe.	1,985			30	2	2	1	-	-
Rowley, . .	1,201	Ma.	614	1·58	19	11	1	-	-	-	-
		Fe.	587			8	1	-	-	-	1
Salem, . .	27,563	Ma.	12,589	2·21	609	303	82	24	4	6	6
		Fe.	14,974			306	67	14	2	4	5
Salisbury, . .	4,079	Ma.	2,006	2·08	85	45	12	2	-	-	-
		Fe.	2,073			40	7	1	-	-	-
Saugus, . .	2,625	Ma.	1,278	1·52	40	20	2	2	1	-	1
		Fe.	1,347			20	2	-	-	-	-
Swampscott, .	2,500	Ma.	1,213	1·56	39	23	9	1	-	-	-
		Fe.	1,287			16	3	-	-	-	1
Topsfield, . .	1,165	Ma.	585	1·89	22	10	-	-	-	1	-
		Fe.	580			12	-	1	-	-	-
Wenham, . .	889	Ma.	432	1·01	9	1	-	-	-	-	-
		Fe.	457			8	1	-	-	-	-
W. Newbury .	1,989	Ma	1.028	1·56	31	20	1	-	-	-	-
		Fe.	961			10	1	-	-	-	-
		Un.	-	-	-	1	1	-	-	-	-
Franklin Co.	36,001	To.	36,001	1·68	605	605	84	17	14	6	4
		Ma.	18,573			307	44	5	9	5	1
		Fe.	17,428			296	38	12	5	1	3
		Un.	-	-	-	2	2	-	-	-	-
Ashfield, . .	1,066	Ma.	545	1·97	21	14	1	-	-	-	-
		Fe.	521			7	1	-	-	-	-
Bernardston, .	934	Ma.	458	1·61	15	7	-	-	-	-	-
		Fe.	476			8	-	-	-	-	-
Buckland, . .	1,739	Ma.	870	1·44	25	11	2	-	-	-	-
		Fe.	869			14	3	-	-	-	-
Charlemont, .	932	Ma.	471	·97	9	6	-	-	-	-	-
		Fe.	461			3	-	-	-	-	-
Colrain, . .	1,777	Ma.	881	1·46	26	13	1	1	1	-	1
		Fe.	896			13	-	-	2	-	-
Conway, . .	1,760	Ma.	1,013	1·25	22	12	-	-	-	1	-
		Fe.	747			10	2	1	-	-	-
Deerfield, . .	3,543	Ma.	1,977	1·67	59	31	5	-	1	1	-
		Fe.	1,566			28	3	-	-	-	-
Erving, . .	872	Ma.	471	1·38	12	7	3	-	-	-	-
		Fe.	401			4	-	-	-	-	1
		Un.	-	-	-	1	1	-	-	-	-
Gill,* . .	733	Ma.	394	-	-	-	-	-	-	-	-
		Fe.	339			-	-	-	-	-	-
Greenfield, .	3,903	Ma.	1,897	1·77	69	31	6	1	1	1	-
		Fe.	2,006			38	3	2	2	-	2

* No return.

Age and Sex, by *Towns.*

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
3	1	1	2	1	1	2	1	-	-	-	3	4	1	3	7	3	-	-	3
1	1	-	2	2	1	2	1	1	-	2	3	1	1	3	2	1	1	-	-
-	-	-	2	-	-	-	-	-	1	-	1	1	1	1	1	1	1	-	-
-	-	-	-	-	2	1	-	-	-	1	-	1	-	-	-	-	1	-	-
11	4	4	22	8	12	8	10	9	8	14	12	15	12	15	13	4	-	-	-
7	5	12	18	23	16	10	7	7	10	12	6	15	20	13	19	10	4	-	-
1	-	1	1	-	4	-	3	2	2	1	4	2	3	4	2	1	-	-	-
1	-	1	2	2	2	2	-	-	1	2	1	3	5	3	5	1	1	-	-
2	1	1	-	-	-	-	-	-	-	2	4	2	1	1	-	-	-	-	-
-	1	-	-	1	2	2	2	1	1	1	-	1	-	2	1	3	-	-	-
-	-	-	1	4	1	1	-	-	-	3	1	1	1	-	-	-	-	-	-
-	-	2	-	-	2	-	1	2	1	1	1	-	1	1	-	-	-	-	-
1	-	-	1	-	-	1	-	-	1	-	-	3	-	-	-	1	1	-	-
-	1	-	-	-	-	-	-	1	-	1	2	-	2	2	1	-	1	-	-
-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
1	1	1	2	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
3	-	-	-	1	-	3	1	-	-	1	2	-	1	3	3	1	-	-	-
-	-	-	-	-	-	-	1	-	1	-	2	-	1	1	2	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	12	16	37	22	20	17	15	27	24	25	33	40	41	41	53	21	11	3	3
6	7	7	20	10	11	6	8	11	20	13	16	21	19	23	26	12	6	-	1
13	5	9	17	12	9	11	7	16	4	12	17	19	22	18	27	9	5	3	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	1	1	-	-	-	-	1	-	-	2	2	-	3	2	1	-	-	-
-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	2	1	-	-	-
1	-	-	-	-	1	-	1	-	1	-	1	1	-	-	-	1	-	-	-
1	-	-	-	-	-	2	-	1	-	1	2	1	-	-	-	-	-	-	-
1	-	-	3	1	-	-	-	1	-	-	-	-	1	-	-	1	1	-	-
-	1	-	-	2	1	1	-	-	-	1	-	2	1	-	-	2	-	-	-
-	-	-	-	-	-	-	-	-	1	-	1	1	2	-	1	-	-	-	-
-	-	-	1	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-
1	-	1	-	1	-	-	-	-	3	-	1	-	-	-	1	1	-	-	-
1	-	-	2	-	1	4	-	1	-	-	1	1	-	-	-	-	-	-	-
2	-	-	2	-	1	-	-	-	-	1	1	-	2	1	1	-	-	-	-
-	-	-	-	-	-	-	-	-	1	1	1	1	-	2	1	-	-	-	-
-	-	-	3	2	2	1	-	1	1	3	1	3	-	2	3	2	-	-	-
1	1	3	1	1	1	1	-	1	1	1	3	1	4	1	2	2	-	-	-
-	-	-	-	-	-	-	-	1	1	-	1	-	-	-	-	1	-	-	-
1	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	1	1	-	3	1	1	2	2	2	1	1	2	-	3	-	2	-	-
2	1	1	1	-	1	-	-	2	-	-	3	5	5	3	2	2	-	1	-

Table VII. — Continued.

Counties and Towns.	Population — 1880.			Deaths.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop	Persons.	Sex.					
Franklin—Con.											
Hawley, . .	592	Ma.	312	2·03	12	6	-	-	-	-	-
		Fe.	280			6	1	-	-	-	-
Heath, . .	560	Ma.	278	·89	5	3	-	-	-	-	-
		Fe.	282			2	-	-	-	-	-
Leverett, . .	742	Ma.	367	2·16	16	5	-	-	-	-	-
		Fe.	375			11	-	-	-	-	-
Leyden, . .	507	Ma.	244	1·97	10	4	-	-	-	-	-
		Fe.	263			6	1	-	-	-	-
Monroe, . .	166	Ma.	95	·60	1	1	-	-	-	-	-
		Fe.	71			-	-	-	-	-	-
Montague, .	4,875	Ma.	2,552	2·01	98	52	21	2	2	1	-
		Fe.	2,323			46	16	6	-	-	-
New Salem, .	869	Ma.	422	2·88	25	12	-	-	1	1	-
		Fe.	447			13	1	-	-	-	-
Northfield, .	1,603	Ma.	791	2·37	38	24	2	-	1	-	-
		Fe.	812			14	2	-	-	-	-
Orange, . .	3,169	Ma.	1,658	1·74	55	28	1	1	1	-	-
		Fe.	1,511			26	2	2	-	1	-
		Un.	-	-	-	1	1	-	-	-	-
Rowe, . .	502	Ma.	275	1·39	7	4	-	-	-	-	-
		Fe.	227			3	-	-	-	-	-
Shelburne, .	1,621	Ma.	806	1·91	31	14	1	-	-	-	-
		Fe.	815			17	1	1	-	-	-
Shutesbury, .	529	Ma.	252	1·89	10	5	1	-	1	-	-
		Fe.	277			5	-	-	-	-	-
Sunderland, .	755	Ma.	376	1·46	11	3	-	-	-	-	-
		Fe.	379			8	-	-	-	-	-
Warwick, .	713	Ma.	346	1·68	12	4	-	-	-	-	-
		Fe.	367			8	1	-	-	-	-
Wendell, . .	465	Ma.	221	·43	2	1	-	-	-	-	-
		Fe.	224			1	-	-	1	-	-
Whately, . .	1,074	Ma.	601	1·30	14	9	-	-	-	-	-
		Fe.	473			5	1	-	-	-	-
Hampden Co.,	104,142	To.	104,142	2·02	2,107	2,107	454	124	56	29	34
		Ma.	49,696			1,053	267	65	33	14	16
		Fe.	54,446			1,053	186	59	23	15	18
		Un.	-	-	-	1	1	-	-	-	-
Agawam, . .	2,216	Ma.	1,097	1·90	42	24	4	-	-	1	-
		Fe.	1,119			18	3	-	-	-	1
Blandford, .	979	Ma.	517	·82	8	4	1	-	-	-	-
		Fe.	462			4	-	-	1	-	-
Brimfield, .	1,203	Ma.	599	1·58	19	4	2	1	-	-	-
		Fe.	604			15	2	-	1	-	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
-	1	-	-	1	-	-	-	-	-	-	-	-	1	-	2	1	-	-	-
-	-	2	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-
-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
-	-	-	1	-	-	-	-	-	1	-	1	1	1	-	-	-	-	-	-
1	-	-	1	1	1	-	-	-	1	1	-	-	1	1	2	-	-	-	1
-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-
-	-	-	-	-	-	-	1	1	-	-	-	-	2	-	1	-	-	-	-
-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	3	-	1	3	1	3	2	1	1	-	2	1	2	2	2	-	1	-	1
2	1	-	1	2	1	-	2	3	-	2	1	2	1	3	1	-	1	-	1
-	-	-	-	-	-	-	-	-	2	1	-	1	1	3	1	1	-	-	-
-	-	-	3	-	-	1	-	-	-	1	1	1	1	1	3	-	-	-	-
-	3	1	1	-	-	-	1	-	-	2	3	3	-	4	3	-	-	-	-
-	-	-	2	1	-	-	-	1	-	-	1	1	1	2	1	1	1	-	-
-	-	2	4	-	2	-	2	1	4	3	-	2	2	3	-	-	-	-	-
2	-	-	2	2	1	-	2	3	1	-	-	-	1	1	5	-	1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	-	-
-	-	-	2	2	-	1	-	-	1	-	-	2	2	1	1	1	-	-	-
2	-	2	1	1	1	-	1	1	-	-	-	1	1	1	-	1	1	1	-
1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
-	1	-	-	1	1	-	-	-	-	1	-	1	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
-	-	-	2	1	-	-	1	-	-	-	-	1	1	2	-	-	-	-	-
-	-	-	-	-	-	-	-	-	1	1	1	-	1	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	2	-	1	1	2	-	-	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	1	-	1	-	-	-	-	2	1	1	1	-	2	-	-
-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	1	-	-	-	-
85	38	113	115	104	83	74	75	78	67	95	85	92	84	89	70	26	17	9	11
36	16	50	46	43	37	33	39	34	35	52	43	48	37	45	36	10	5	5	8
49	22	63	69	61	46	41	36	44	32	43	42	44	47	44	34	16	12	4	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	1	-	1	-	1	1	-	2	2	3	2	-	3	-	1	-	-
2	1	-	1	-	1	-	-	-	-	-	1	2	-	3	2	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1
-	-	-	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
-	-	1	-	-	-	-	1	-	-	2	1	1	2	2	-	1	-	1	-

Table VII. — Continued.

Counties and Towns.	Population — 1880. Persons.	Population — 1880. Sex.		Deaths. Per ct. to Pop.	Deaths. Persons.	Deaths. Sex.	Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
Hampden—Con.											
Chester,	1,473	Ma.	766	2·24	33	21	8	1	1	-	-
		Fe.	707			12	-	1	-	-	-
Chicopee,	11,286	Ma.	5,236	1·92	217	104	20	4	6	-	2
		Fe.	6,050			113	20	8	3	3	3
Granville,	1,205	Ma.	607	1·08	13	7	1	-	-	-	1
		Fe.	598			6	-	-	-	-	-
Hampden,	958	Ma.	479	1·88	18	8	2	-	-	-	-
		Fe.	479			10	1	-	-	-	-
Holland,	302	Ma.	146	1·99	6	3	-	1	-	-	-
		Fe.	156			3	-	-	-	-	-
Holyoke,	21,915	Ma.	10,308	2·52	552	271	91	21	8	2	6
		Fe.	11,607			281	67	25	7	3	2
Longmeadow,	1,401	Ma.	709	2·36	33	19	2	1	-	-	-
		Fe.	692			14	2	-	-	1	-
Ludlow,	1,526	Ma.	729	2·69	41	26	5	1	1	-	-
		Fe.	797			15	3	1	-	-	-
Monson,	3,758	Ma.	1,850	1·76	66	30	5	2	-	1	-
		Fe.	1,908			36	3	-	2	1	-
(*State Primary School*),	-	Ma.	-	-	5	3	-	-	-	-	-
		Fe.	-			2	1	-	1	-	-
Montgomery,	303	Ma.	161	2·97	9	6	1	1	-	2	-
		Fe.	142			3	-	-	-	-	-
Palmer,	5,504	Ma.	2,624	1·65	91	51	10	5	-	1	-
		Fe.	2,880			40	9	2	-	-	1
Russell,	823	Ma.	378	3·04	25	15	7	1	-	-	-
		Fe.	445			10	1	1	-	-	-
Southwick,	1,104	Ma.	562	1·54	17	13	1	-	-	-	-
		Fe.	542			4	1	-	-	-	-
Springfield,	33,340	Ma.	15,767	1·91	636	308	75	21	12	6	5
		Fe.	17,573			327	59	15	6	6	8
		Un.	-	-	-	1	1	-	-	-	-
Tolland,	452	Ma.	258	1·55	7	6	2	-	-	-	-
		Fe.	194			1	-	-	-	-	-
Wales,	1,030	Ma.	532	1·55	16	7	1	-	2	-	-
		Fe.	498			9	-	-	-	-	1
Westfield,	7,587	Ma.	3,597	1·74	132	59	14	1	1	1	2
		Fe.	3,990			73	6	1	1	-	1
W. Springfield,	4,149	Ma.	2,006	2·05	85	45	11	3	2	-	-
		Fe.	2,143			40	6	5	-	1	1
Wilbraham,	1,628	Ma.	768	2·21	36	19	4	1	-	-	-
		Fe.	860			17	2	-	1	-	-
HAMPSHIRE,	47,232	To.	47,232	2·02	954	954	157	28	20	18	16
		Ma.	22,678			475	92	14	13	9	5
		Fe.	24,554			479	65	14	7	9	11

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
-	-	-	1	-	-	1	2	-	-	1	1	1	1	-	2	-	-	1	-
-	-	-	-	-	2	-	-	1	-	3	-	1	-	2	1	-	-	1	-
7	1	7	2	2	5	2	4	6	3	3	2	8	2	6	8	1	1	1	1
4	2	8	4	5	4	2	4	7	3	6	7	5	5	2	4	2	-	1	1
-	-	1	1	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
-	-	-	-	-	-	-	1	-	-	-	1	-	2	-	2	-	-	-	-
-	-	-	1	1	-	-	-	-	1	-	-	-	2	-	1	-	-	-	-
-	-	-	2	1	-	-	-	-	-	-	3	-	-	1	2	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
-	-	-	1	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
7	6	12	19	17	10	7	11	6	10	11	9	5	2	6	3	-	1	1	-
10	7	31	24	22	13	11	10	7	8	9	6	5	6	2	3	1	2	-	-
2	-	-	-	-	-	-	1	1	2	2	-	2	-	2	3	-	-	-	1
3	-	-	1	-	-	1	-	-	-	1	-	1	1	2	1	-	-	-	-
1	1	1	1	-	-	1	-	2	1	1	1	1	2	2	2	1	-	1	-
-	-	-	-	-	1	1	-	1	2	2	-	-	-	1	3	-	-	-	-
1	-	2	-	2	-	-	1	3	1	3	1	3	3	-	2	-	-	-	-
1	1	4	3	1	1	2	1	1	1	1	1	2	4	2	2	-	2	-	-
1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
1	2	6	5	5	4	1	-	-	-	-	1	2	3	3	-	1	-	-	1
2	2	3	5	2	-	-	-	3	2	1	2	1	1	1	2	-	1	-	-
-	-	-	-	1	-	-	-	1	-	1	1	-	-	3	-	-	-	-	-
-	-	1	1	1	-	-	1	-	1	-	-	2	-	1	-	-	-	-	-
-	-	-	-	-	1	1	1	-	-	-	2	2	-	3	1	-	-	-	1
-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	1	-	-	-	-
12	5	17	9	11	7	13	11	9	11	21	15	14	11	10	6	5	1	1	-
17	5	12	19	18	14	21	14	16	10	10	12	14	17	14	6	8	4	-	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	1	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	1	-	-
-	-	-	-	-	-	1	1	-	-	-	-	2	1	2	-	1	-	-	-
-	1	1	2	1	5	5	4	2	3	3	4	3	1	3	1	-	-	-	1
7	3	3	6	5	7	2	2	6	3	4	3	5	2	3	1	1	1	-	-
1	-	-	3	2	3	1	1	3	2	2	2	1	4	-	3	1	-	-	-
3	-	-	2	5	2	-	-	1	-	2	2	2	1	3	1	1	1	1	-
1	-	1	-	-	1	-	1	-	-	2	-	1	3	2	-	-	-	-	2
-	-	-	-	1	-	-	-	-	2	1	1	-	3	2	3	-	1	-	-
41	19	41	45	39	37	36	28	37	35	39	39	56	61	71	45	30	10	2	4
21	8	14	21	19	16	11	13	17	14	17	19	28	36	41	22	17	5	-	3
20	11	27	24	20	21	25	15	20	21	22	20	28	25	30	23	13	5	2	1

TABLE VII.—Continued.

COUNTIES AND TOWNS.	POPULATION — 1880. Persons.	POPULATION — 1880. Sex.		DEATHS. Per ct. to Pop.	DEATHS. Persons.	DEATHS. Sex.	Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
Hampshire–Con.											
Amherst, . .	4,298	Ma.	2,160	1·72	74	30	5	–	–	1	–
		Fe.	2,138			44	1	1	–	–	–
Belchertown, .	2,346	Ma.	1,162	2·60	61	34	6	2	1	–	–
		Fe.	1,184			27	–	–	1	2	–
Chesterfield, .	769	Ma.	395	2·08	16	7	1	–	–	–	–
		Fe.	374			9	2	–	–	–	–
Cummington, .	881	Ma.	442	2·95	26	14	–	–	1	–	–
		Fe.	439			12	–	–	–	–	–
Easthampton, .	4,206	Ma.	1,827	1·93	81	43	15	1	1	1	1
		Fe.	2,379			38	5	3	–	–	1
Enfield, . .	1,043	Ma.	516	2·11	22	9	–	1	–	–	–
		Fe.	527			13	3	1	–	–	–
Goshen, . .	327	Ma.	171	·92	3	2	–	–	–	–	–
		Fe.	156			1	1	–	–	–	–
Granby, . .	753	Ma.	380	1·46	11	6	2	–	–	–	–
		Fe.	373			5	–	–	–	–	–
Greenwich, .	633	Ma.	310	2·21	14	7	1	1	–	–	–
		Fe.	323			7	–	–	–	–	–
Hadley, . .	1,938	Ma.	970	1·50	29	11	3	–	–	–	–
		Fe.	968			18	2	–	–	–	–
Hatfield, . .	1,495	Ma.	792	1·54	23	14	4	–	–	–	–
		Fe.	703			9	–	–	–	–	–
Huntington, .	1,236	Ma.	612	2·27	28	14	1	–	2	–	–
		Fe.	624			14	5	2	1	–	–
Middlefield, .	648	Ma.	313	1·54	10	5	1	–	–	–	–
		Fe.	335			5	1	1	–	–	–
Northampton, .	12,172	Ma.	5,643	1·84	224	117	23	4	2	3	2
		Fe.	6,529			107	18	2	2	4	2
Pelham, . .	614	Ma.	298	1·95	12	5	–	–	–	–	–
		Fe.	316			7	1	–	–	–	–
Plainfield, .	457	Ma.	231	2·63	12	7	–	–	–	–	–
		Fe.	226			5	–	–	–	–	–
Prescott, . .	460	Ma.	235	3·26	15	7	–	–	–	–	1
		Fe.	225			8	–	–	–	–	–
South Hadley, .	3,538	Ma.	1,735	2·57	91	42	7	3	4	–	–
		Fe.	1,803			49	11	2	1	1	4
Southampton, .	1,046	Ma.	522	2·20	23	13	2	–	–	1	–
		Fe.	524			10	–	1	–	–	–
Ware, . .	4,817	Ma.	2,191	2·66	128	65	18	1	2	2	–
		Fe.	2,626			63	13	1	–	2	2
Westhampton, .	563	Ma.	268	1·60	9	5	–	–	–	–	–
		Fe.	295			4	–	–	–	–	–

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
-	-	1	1	3	1	-	-	2	1	2	-	3	4	1	3	1	1	-	-
2	2	2	1	5	3	3	-	2	5	2	4	5	-	1	2	2	1	-	-
2	1	-	-	-	2	-	1	1	1	2	2	1	4	3	2	2	1	-	-
2	1	4	-	1	1	1	3	2	-	-	1	3	-	2	1	-	-	2	-
-	-	-	-	-	-	1	-	-	-	-	1	-	2	2	-	-	-	-	-
-	-	-	-	-	-	3	-	1	1	-	-	-	-	1	1	-	-	-	-
-	-	1	1	-	-	-	-	-	1	1	-	2	-	5	-	2	-	-	-
-	-	1	1	-	-	-	-	1	-	1	2	2	2	-	1	1	-	-	-
2	1	1	1	2	1	1	1	1	-	1	2	-	1	4	3	1	-	-	1
3	1	1	3	2	3	2	-	2	2	-	-	-	1	3	3	1	1	-	1
1	-	-	-	-	-	-	-	-	-	-	-	1	1	1	3	1	-	-	-
-	1	-	1	1	-	-	1	-	1	1	-	1	-	1	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	1	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-
-	-	1	1	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	1	1	-	-	-	1	1	-	-	-	-
-	-	-	-	-	1	1	-	-	-	-	-	-	2	1	1	1	-	-	-
-	1	-	-	-	-	-	1	-	-	-	2	1	2	1	-	-	-	-	-
1	-	-	-	2	1	-	-	-	2	2	1	2	1	1	1	2	-	-	-
-	-	-	-	-	1	1	-	3	1	-	1	1	-	2	-	-	-	-	-
1	-	-	-	-	-	2	-	1	-	-	-	-	3	2	-	-	-	-	-
2	-	-	-	1	-	1	2	1	1	1	2	-	-	-	-	-	-	-	-
-	-	-	1	-	-	1	-	-	2	-	-	-	1	1	-	-	-	-	-
-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
1	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
4	2	5	7	4	10	1	5	5	6	3	5	8	7	4	3	4	-	-	-
4	3	7	6	4	2	7	4	4	3	9	4	8	5	4	4	-	1	-	-
-	1	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1	1	-	-
-	-	1	-	-	-	-	1	-	-	1	1	-	-	-	1	1	-	-	-
-	-	-	-	1	-	-	-	-	-	-	-	1	-	2	1	-	2	-	-
-	-	-	1	-	1	-	-	-	-	1	-	-	1	-	-	-	1	-	-
-	-	-	-	-	-	-	-	-	-	1	-	1	2	1	1	-	-	-	-
-	-	1	1	1	-	-	-	-	-	-	-	-	1	3	-	-	1	-	-
6	-	2	3	5	-	1	-	1	1	1	-	1	2	2	2	1	-	-	-
4	-	4	-	-	2	2	4	2	2	1	1	1	1	2	3	1	-	-	-
1	-	1	-	-	-	1	-	1	-	1	-	-	1	2	1	1	-	-	-
1	1	-	-	-	-	-	-	-	1	-	1	2	1	1	1	-	-	-	-
3	2	1	7	2	-	2	1	1	1	2	2	6	5	3	1	1	-	-	2
-	2	4	8	4	4	2	1	3	1	1	2	2	3	5	2	1	-	-	-
-	-	1	-	-	-	-	-	-	-	-	1	-	2	1	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1	-	-	-

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop.	Persons.	Sex.					
Hampshire—Con.											
Amherst, . .	4,298	Ma.	2,160	1·72	74	30	5	–	–	1	–
		Fe.	2,138			44	1	1	–	–	–
Belchertown, .	2,346	Ma.	1,162	2·60	61	34	6	2	1	–	–
		Fe.	1,184			27	–	–	1	2	–
Chesterfield, .	769	Ma.	395	2·08	16	7	1	–	–	–	–
		Fe.	374			9	2	–	–	–	–
Cummington, .	881	Ma.	442	2·95	26	14	–	–	1	–	–
		Fe.	439			12	–	–	–	–	–
Easthampton, .	4,206	Ma.	1,827	1·93	81	43	15	1	1	1	1
		Fe.	2,379			38	5	3	–	–	1
Enfield, . .	1,043	Ma.	516	2·11	22	9	–	1	–	–	–
		Fe.	527			13	3	1	–	–	–
Goshen, . .	327	Ma.	171	·92	3	2	–	–	–	–	–
		Fe.	156			1	1	–	–	–	–
Granby, . .	753	Ma.	380	1·46	11	6	2	–	–	–	–
		Fe.	373			5	–	–	–	–	–
Greenwich, .	633	Ma.	310	2·21	14	7	1	1	–	–	–
		Fe.	323			7	–	–	–	–	–
Hadley, . .	1,938	Ma.	970	1·50	29	11	3	–	–	–	–
		Fe.	968			18	2	–	–	–	–
Hatfield, . .	1,495	Ma.	792	1·54	23	14	4	–	–	–	–
		Fe.	703			9	–	–	–	–	–
Huntington, .	1,236	Ma.	612	2·27	28	14	1	–	2	–	–
		Fe.	624			14	5	2	1	–	–
Middlefield, .	648	Ma.	313	1·54	10	5	1	–	–	–	–
		Fe.	335			5	1	1	–	–	–
Northampton, .	12,172	Ma.	5,643	1·84	224	117	23	4	2	3	2
		Fe.	6,529			107	18	2	2	4	2
Pelham, . .	614	Ma.	298	1·95	12	5	–	–	–	–	–
		Fe.	316			7	1	–	–	–	–
Plainfield, .	457	Ma.	231	2·63	12	7	–	–	–	–	–
		Fe.	226			5	–	–	–	–	–
Prescott, . .	460	Ma.	235	3·26	15	7	–	–	–	–	1
		Fe.	225			8	–	–	–	–	–
South Hadley, .	3,538	Ma.	1,735	2·57	91	42	7	3	4	–	–
		Fe.	1,803			49	11	2	1	1	4
Southampton, .	1,046	Ma.	522	2·20	23	13	2	–	–	1	–
		Fe.	524			10	–	1	–	–	–
Ware, . .	4,817	Ma.	2,191	2·66	128	65	18	1	2	2	–
		Fe.	2,626			63	13	1	–	2	2
Westhampton, .	563	Ma.	268	1·60	9	5	–	–	–	–	–
		Fe.	295			4	–	–	–	–	–

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
-	-	1	1	3	1	-	-	2	1	2	-	3	4	1	3	1	1	-	-
2	2	2	1	5	3	3	-	2	5	2	4	5	-	1	2	2	1	-	-
2	1	-	-	-	2	-	1	1	1	2	2	1	4	3	2	2	1	-	-
2	1	4	-	1	1	1	3	2	-	-	1	3	-	2	1	-	-	2	-
-	-	-	-	-	-	1	-	-	-	-	1	-	2	2	-	-	-	-	-
-	-	-	-	-	-	3	-	1	1	-	-	-	-	1	1	-	-	-	-
-	-	1	1	-	-	-	-	-	1	1	-	2	-	5	-	2	-	-	-
-	-	1	1	-	-	-	-	1	-	1	2	2	2	-	1	1	-	-	-
2	1	1	1	2	1	1	1	1	-	1	2	-	1	4	3	1	-	-	1
3	1	1	3	2	3	2	-	2	2	-	-	-	1	3	3	1	1	-	1
1	-	-	-	-	-	-	-	-	-	-	-	1	1	1	3	1	-	-	-
-	1	-	1	1	-	-	1	-	1	1	-	1	-	1	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	1	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-
-	-	1	1	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	1	1	-	-	-	1	1	-	-	-	-
-	-	-	-	-	1	1	-	-	-	-	-	-	2	1	1	1	-	-	-
-	1	-	-	-	-	-	1	-	-	-	2	1	2	1	-	-	-	-	-
1	-	-	-	2	1	-	-	-	2	2	1	2	1	1	1	2	-	-	-
-	-	-	-	-	1	1	-	3	1	-	1	1	-	2	-	-	-	-	-
1	-	-	-	-	-	2	-	1	-	-	-	-	3	2	-	-	-	-	-
2	-	-	-	1	-	1	2	1	1	1	2	-	-	-	-	-	-	-	-
-	-	-	1	-	-	1	-	-	2	-	-	-	1	1	-	-	-	-	-
-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
1	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
4	2	5	7	4	10	1	5	5	6	3	5	8	7	4	3	4	-	-	-
4	3	7	6	4	2	7	4	4	3	9	4	8	5	4	4	-	1	-	-
-	1	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1	1	-	-
-	-	1	-	-	-	-	1	-	-	1	1	-	-	-	1	1	-	-	-
-	-	-	-	1	-	-	-	-	-	-	-	1	-	2	1	-	2	-	-
-	-	-	1	-	1	-	-	-	-	1	-	-	1	-	-	-	1	-	-
-	-	-	-	-	-	-	-	-	-	1	-	1	2	1	1	-	-	-	-
-	-	1	1	1	-	-	-	-	-	-	-	-	1	3	-	-	1	-	-
6	-	2	3	5	-	1	-	1	1	1	-	1	2	2	2	1	-	-	-
4	-	4	-	-	2	2	4	2	2	1	1	1	1	2	3	1	-	-	-
1	-	1	-	-	-	1	-	1	-	1	-	-	1	2	1	1	-	-	-
1	1	-	-	-	-	-	-	-	1	-	1	2	1	1	1	-	-	-	-
3	2	1	7	2	-	2	1	1	1	2	2	6	5	3	1	1	-	-	2
-	2	4	8	4	4	2	1	3	1	1	2	2	3	5	2	1	-	-	-
-	-	1	-	-	-	-	-	-	-	-	1	-	2	1	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1	-	-	-

Table VII. — Continued.

Counties and Towns.	Population — 1880.			Deaths.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop	Persons.	Sex.					
Hampshire–Con.											
Williamsburg, .	2,234	Ma.	1,125	1·39	31	11	1	-	-	1	1
		Fe.	1,109			20	1	-	2	-	2
Worthington, .	758	Ma.	380	1·45	11	7	2	1	-	-	-
		Fe.	378			4	1	-	-	-	-
MIDDLESEX,	317,830	To.	317.830	1 94	6,181	6,181	1307	364	182	136	106
		Ma.	151,528			3,054	706	194	101	65	43
		Fe.	166,302			3,127	601	170	81	71	63
Acton, . .	1,797	Ma.	917	1·45	26	14	1	-	1	-	-
		Fe.	880			12	-	-	-	-	-
Arlington, .	4,100	Ma.	1,943	1·93	79	39	11	6	1	-	-
		Fe.	2,157			40	10	3	2	-	2
Ashby, . .	914	Ma.	452	1·64	15	10	1	-	1	-	-
		Fe.	462			5	-	-	-	-	-
Ashland, . .	2,394	Ma.	1,221	1·67	40	18	4	3	-	-	-
		Fe.	1,173			22	5	3	-	-	-
Ayer, . .	1,181	Ma.	631	2·02	38	24	6	-	-	-	-
		Fe.	950			14	-	-	-	-	-
Bedford, . .	931	Ma.	470	1·50	14	9	2	-	-	-	1
		Fe.	461			5	-	-	-	-	-
Belmont, . .	1,615	Ma.	783	1·42	23	11	3	1	-	-	-
		Fe	832			12	-	1	1	-	1
Billerica, . .	2,000	Ma.	991	1·25	25	7	-	-	-	-	-
		Fe.	1,009			18	-	1	-	-	-
Boxborough, .	319	Ma.	161	1·88	6	2	-	-	-	-	-
		Fe.	158			4	-	-	1	-	-
Burlington, .	711	Ma.	390	1·13	8	4	-	-	-	-	-
		Fe.	321			4	-	1	-	-	-
Cambridge, .	52,669	Ma.	25.024	2·17	1,143	544	161	40	26	11	10
		Fe.	27,645			599	133	38	16	12	19
Carlisle, . .	478	Ma.	246	2 09	10	5	1	-	-	-	-
		Fe.	232			5	-	-	-	-	-
Chelmsford, .	2,555	Ma.	1,290	1·29	33	17	4	-	-	-	-
		Fe.	1,263			16	6	1	-	-	-
Concord, . .	3,922	Ma.	2,310	1·76	69	41	3	2	2	-	-
		Fe.	1,612			28	6	-	-	-	-
Dracut, . .	1,595	Ma.	876	·75	12	8	2	-	1	-	-
		Fe.	719			4	-	-	-	1	-
Dunstable, .	453	Ma.	229	2·43	11	6	-	-	-	-	-
		Fe.	224			5	-	-	-	-	-
Everett, . .	4,159	Ma.	2,047	1·54	64	28	7	2	1	-	-
		Fe.	2,112			36	9	1	1	1	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
-	-	-	-	-	-	2	1	-	-	1	-	1	-	3	-	-	-	-	-
1	-	1	-	-	-	1	1	2	1	2	-	1	3	1	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	1	-	-	-
-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-
237	128	217	333	292	236	252	185	237	251	230	232	242	323	283	205	127	43	12	21
119	70	86	158	126	104	119	94	126	127	120	101	131	173	128	93	43	12	3	12
118	58	131	175	166	132	133	91	111	124	110	131	111	150	155	112	84	31	9	9
-	-	-	1	-	-	-	1	2	1	-	-	1	1	1	4	-	-	-	-
-	-	2	2	-	1	-	-	-	-	1	1	-	1	3	-	1	-	-	-
1	2	2	1	-	1	2	1	1	2	-	3	2	3	-	-	-	-	-	-
3	1	-	-	2	2	1	1	-	2	2	1	1	-	3	3	1	-	-	-
-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	3	1	-	-	-
-	-	-	-	1	-	1	-	-	1	-	-	-	-	1	-	1	-	-	-
1	1	-	2	-	1	-	1	1	-	1	-	1	1	1	-	-	-	-	-
1	-	1	1	-	-	1	-	1	-	1	2	-	-	3	2	-	1	-	-
-	-	-	2	-	1	3	1	1	1	1	1	3	2	1	1	-	-	-	-
1	-	2	2	2	-	1	-	2	-	-	1	1	1	-	1	-	-	-	-
-	-	-	-	1	-	-	-	1	-	-	1	-	1	2	-	-	-	-	-
-	-	-	1	-	-	-	-	-	-	2	1	-	1	-	-	-	-	-	-
-	-	4	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
1	1	-	1	-	1	-	1	-	-	-	-	-	-	1	2	1	-	-	-
-	-	-	-	-	-	1	1	-	2	2	-	-	1	-	-	-	-	-	-
1	-	2	-	1	2	1	-	1	-	-	2	-	2	3	-	1	-	-	1
-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
-	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-
-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	1	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-
21	18	7	34	17	18	20	15	15	26	24	15	17	19	15	6	3	2	-	4
24	12	19	23	34	26	34	13	18	24	12	27	16	29	25	21	16	5	-	3
-	-	-	-	2	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	1	-	-	-	2	1	1	-	-	-	-
-	1	1	1	-	-	2	1	-	-	-	1	3	-	2	1	-	-	-	-
-	-	1	-	2	-	-	1	-	1	-	1	-	1	1	-	-	-	1	-
2	2	2	1	2	-	1	5	2	4	4	-	4	2	2	1	-	-	-	-
3	-	1	2	1	3	1	-	1	-	-	2	2	1	2	1	2	-	-	-
-	-	-	-	-	-	-	-	1	-	-	-	-	1	2	-	1	-	-	-
-	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	-	-	-	3	1	-	-	1	-	-	-
-	-	-	-	-	-	-	-	-	1	-	-	-	2	1	1	-	-	-	-
2	-	1	2	2	-	2	-	-	1	2	1	1	-	2	2	-	-	-	-
1	1	3	2	1	1	-	1	2	1	2	3	1	1	2	1	1	-	-	-

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880. Persons.	POPULATION — 1880. Sex.		DEATHS. Per ct. to Pop.	DEATHS. Persons.	DEATHS. Sex.	Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
Middlesex—Con.											
Framingham, .	6,235	Ma.	2,891	1·51	94	46	6	2	2	–	1
		Fe.	3,344			48	6	2	1	2	–
Groton, . .	1,862	Ma.	908	1·77	33	17	1	–	–	–	–
		Fe.	954			16	3	–	–	–	–
Holliston, .	3,098	Ma.	1,494	1·74	54	17	5	–	–	1	–
		Fe.	1,604			37	5	2	–	1	–
Hopkinton, .	4,601	Ma.	2,320	1·46	67	34	4	1	–	–	–
		Fe.	2,281			33	4	3	–	1	–
Hudson, . .	3,739	Ma.	1,862	2·01	75	35	12	4	–	–	–
		Fe.	1,877			40	12	4	2	–	1
Lexington, .	2,460	Ma.	1,219	1·83	45	18	2	2	1	–	1
		Fe.	1,241			27	2	1	1	–	1
Lincoln, . .	907	Ma.	467	1·32	12	6	1	–	–	–	–
		Fe.	440			6	–	–	–	–	–
Littleton, . .	994	Ma.	506	1·51	15	11	2	–	–	–	–
		Fe.	488			4	1	–	–	–	–
Lowell, . .	59,475	Ma.	26,853	2·16	1,287	607	174	39	18	14	10
		Fe.	32,622			680	152	35	22	23	7
Malden, . .	12,017	Ma.	5,590	2·01	242	118	21	9	4	1	6
		Fe.	6,427			124	22	8	4	2	1
Marlborough, .	10,127	Ma.	5,171	1·68	170	78	19	6	5	4	1
		Fe.	4,956			92	14	9	2	4	3
Maynard, . .	2,291	Ma.	1,154	1·70	39	21	3	4	1	–	–
		Fe.	1,137			18	3	5	–	–	–
Medford, . .	7,573	Ma.	3,688	1·48	112	60	12	4	3	2	–
		Fe.	3,885			52	6	4	1	2	1
Melrose, . .	4,560	Ma.	2,081	1·43	65	27	4	3	–	1	–
		Fe.	2,479			38	9	–	–	–	–
Natick, . .	8,479	Ma.	4,251	1·62	137	70	13	2	1	2	2
		Fe.	4,228			67	13	4	5	2	2
Newton, . .	16,995	Ma.	7,580	1·59	271	135	26	8	4	5	3
		Fe.	9,415			136	18	4	2	6	6
No. Reading, .	900	Ma	454	1·78	16	7	2	–	–	–	–
		Fe.	446			9	–	1	–	–	–
Pepperell, .	2,348	Ma.	1,178	1·70	40	26	1	1	–	–	–
		Fe.	1,170			14	1	–	–	–	–
Reading, . .	3,181	Ma.	1,445	1·63	52	23	–	–	–	1	–
		Fe.	1,736			29	1	1	1	–	–
Sherborn, . .	1,401	Ma.	510	1·71	24	9	–	1	–	–	–
		Fe.	891			15	5	–	–	–	–

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
3	-	2	3	2	2	2	2	1	2	3	1	1	4	4	2	-	1	-	-
1	1	2	2	3	2	2	1	2	-	1	2	1	3	5	2	4	3	-	-
-	-	-	1	2	1	-	-	2	-	-	-	1	1	4	2	2	-	-	-
1	-	1	1	1	1	-	1	-	1	2	-	-	-	1	2	1	-	-	-
-	-	1	-	-	-	-	1	-	-	1	2	1	4	1	-	-	-	-	-
1	-	3	4	2	1	3	1	-	3	-	1	1	2	3	3	1	-	-	-
1	-	2	4	2	1	1	-	2	2	4	1	2	-	3	1	-	-	1	2
1	-	-	-	3	1	2	2	3	1	-	1	2	2	2	3	-	2	-	-
1	-	1	-	-	-	3	2	2	2	1	-	1	6	-	-	-	-	-	-
-	-	3	-	2	3	-	3	1	4	-	1	1	1	1	-	1	-	-	-
-	1	1	1	1	1	-	-	1	-	-	2	-	1	2	-	1	-	-	-
-	2	2	2	-	-	1	1	-	3	1	3	3	1	1	1	1	-	-	-
-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	1	2	-	-	-
1	-	-	-	-	-	1	-	1	1	-	-	-	1	-	-	-	1	-	-
-	-	-	1	-	-	-	-	-	-	1	1	-	2	-	2	1	1	-	-
-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	1	-	-	-
21	13	21	33	26	26	22	18	30	19	19	11	30	27	18	15	1	2	-	-
17	6	41	54	32	30	35	25	25	27	27	27	25	28	19	6	9	7	1	-
6	1	4	8	6	3	4	6	5	4	6	7	7	4	3	1	-	1	1	-
5	1	6	6	5	4	6	3	1	9	4	9	6	7	6	6	2	-	-	1
6	-	1	4	6	2	2	1	6	2	3	2	-	3	2	1	2	-	-	-
8	1	6	7	4	6	3	1	6	2	2	1	3	3	3	2	-	1	1	-
-	-	-	2	-	1	-	1	1	-	3	2	3	-	-	-	-	-	-	-
-	-	-	2	2	-	-	-	1	1	-	1	1	-	-	2	-	-	-	-
1	1	2	6	3	-	2	1	1	2	5	2	3	3	2	2	2	-	-	1
2	1	2	-	3	2	2	-	1	2	5	-	2	3	6	3	3	-	1	-
1	2	-	2	1	-	3	2	-	-	-	2	1	3	1	1	-	-	-	-
-	-	1	2	3	-	1	4	1	-	2	4	1	5	3	1	1	-	-	-
6	2	1	2	4	2	4	2	4	3	3	2	3	4	4	2	2	-	-	-
2	3	1	2	5	2	2	1	2	4	2	6	-	3	3	2	-	1	-	-
12	12	4	3	3	6	2	2	7	3	4	4	3	11	5	4	3	1	-	-
3	6	3	6	9	8	7	1	5	5	6	3	9	9	5	6	6	2	1	-
-	-	-	-	-	-	1	-	-	-	-	-	-	3	-	-	1	-	-	-
-	-	-	-	-	-	-	1	-	1	-	2	-	2	1	-	1	-	-	-
2	1	1	2	1	1	-	1	1	1	1	1	2	5	-	-	1	1	-	2
-	-	-	-	1	-	1	-	-	1	-	-	2	2	2	2	2	-	-	-
-	-	-	1	-	1	3	2	-	2	3	3	1	1	2	2	1	-	-	-
-	-	-	1	1	2	2	1	2	1	2	1	2	2	3	2	3	-	1	-
-	-	-	-	2	1	-	-	-	1	2	1	-	-	-	1	-	-	-	-
-	-	-	-	-	-	1	-	-	1	3	1	1	-	-	3	-	-	-	-

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop.	Persons.	Sex.					
Middlesex—Con.											
Shirley,	1,365	Ma.	637	2·20	30	17	3	-	1	-	-
		Fe.	728			13	1	-	-	-	-
Somerville,	24,933	Ma.	11,873	1·84	460	247	61	24	14	8	4
		Fe.	13,060			213	54	11	5	6	5
Stoneham,	4,890	Ma.	2,325	2·58	126	47	6	1	4	1	-
		Fe.	2,565			79	9	3	1	1	5
Stow,	1,045	Ma.	527	1·91	20	9	-	-	-	-	-
		Fe.	518			11	1	-	-	-	-
Sudbury,	1,178	Ma.	596	2·29	27	13	3	-	-	1	-
		Fe.	582			14	3	-	-	-	-
Tewksbury,	2,179	Ma.	1,106	1·61	35	20	2	1	-	-	-
		Fe.	1,073			15	1	1	-	-	1
(St. Almshouse),	-	Ma.	-	-	229	160	26	2	-	1	-
		Fe.	-			69	19	1	4	1	-
Townsend,	1,967	Ma.	974	1·98	39	19	5	-	-	-	1
		Fe.	993			20	3	-	-	1	-
Tyngsborough,	631	Ma.	303	1·74	11	5	-	-	-	-	-
		Fe.	328			6	1	-	-	-	-
Wakefield,	5,547	Ma.	2,638	2·07	115	61	17	4	1	6	1
		Fe.	2,909			54	12	5	2	-	3
Waltham,	11,712	Ma.	5,440	1·71	200	101	20	8	3	2	2
		Fe.	6,272			99	16	4	4	3	2
Watertown,	5,426	Ma.	2,578	1·58	86	44	10	2	3	2	-
		Fe.	2,848			42	7	4	-	1	2
Wayland,	1,962	Ma.	1,004	1·33	26	15	2	1	-	-	-
		Fe.	958			11	2	-	-	-	-
Westford,	2,147	Ma.	1,070	1·72	37	15	2	1	1	1	-
		Fe.	1,077			22	3	-	-	-	-
Weston,	1,448	Ma.	732	1·49	22	9	-	1	-	-	-
		Fe.	716			13	1	1	-	-	-
Wilmington,	933	Ma.	463	1·71	16	8	2	-	-	-	-
		Fe.	470			8	1	-	-	-	-
Winchester,	3,802	Ma.	1,857	1·47	56	24	6	1	-	1	-
		Fe.	1,945			32	4	4	1	-	1
Woburn,	10,931	Ma.	5,502	1·65	180	88	27	8	2	-	-
		Fe.	5,429			92	17	4	2	1	-
NANTUCKET,	3,727	To.	3,727	3·01	112	112	8	2	-	3	-
		Ma.	1,642			48	3	-	-	2	-
		Fe.	2,085			64	5	2	-	1	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
–	–	1	1	2	–	–	–	1	–	–	1	2	1	1	2	1	–	–	–
–	–	1	–	–	2	–	1	–	–	–	–	1	1	4	1	1	–	–	–
9	5	7	7	11	3	6	11	10	12	7	6	8	17	4	9	3	–	–	1
13	6	6	8	7	5	8	9	9	5	14	12	8	5	9	6	2	–	–	–
6	1	3	1	–	3	3	1	2	2	2	2	3	–	2	2	1	–	1	–
7	2	4	11	3	5	–	2	5	3	3	2	2	4	2	3	1	1	–	–
–	–	–	1	–	–	–	–	–	–	–	1	1	1	3	1	1	–	–	–
–	–	2	–	1	1	–	1	–	–	1	–	2	1	–	1	–	–	–	–
–	1	–	–	1	–	–	–	1	–	–	2	–	1	2	–	1	–	–	–
–	–	–	1	2	–	–	–	–	1	–	1	1	2	1	1	1	–	–	–
1	–	–	–	1	4	–	2	–	1	–	2	–	2	1	2	–	–	–	1
–	–	–	1	1	1	–	1	–	–	2	–	–	–	2	–	2	–	–	2
1	–	2	8	7	13	12	7	11	14	7	6	3	17	12	8	2	1	–	–
–	1	1	10	6	5	–	4	4	5	1	1	–	3	2	1	–	–	–	–
1	2	–	–	–	–	–	–	–	1	–	–	6	1	2	–	–	–	–	–
–	–	–	–	1	–	–	–	1	–	1	1	2	1	4	2	1	–	1	1
–	–	–	1	–	–	1	1	–	–	–	–	1	–	–	1	–	–	–	–
–	–	–	–	1	–	–	1	–	–	–	–	1	–	1	–	1	–	–	–
4	–	3	3	2	1	1	1	1	2	2	3	2	2	5	–	–	–	–	–
5	1	–	2	–	1	1	1	4	3	–	1	1	4	3	1	3	1	–	–
3	1	7	8	7	4	6	1	4	3	3	1	3	5	5	2	2	–	–	1
9	2	7	6	8	3	2	2	3	3	3	1	2	3	3	8	2	1	1	1
3	1	2	3	3	1	–	–	4	1	–	1	–	3	2	2	1	–	–	–
3	3	2	2	4	1	1	–	–	1	3	3	–	1	1	1	1	1	–	–
–	–	–	–	1	–	–	–	1	1	–	–	4	2	–	1	2	–	–	–
–	–	–	1	–	–	1	–	1	–	2	–	–	1	3	–	–	–	–	–
–	–	–	1	–	1	2	–	1	–	1	1	–	–	2	1	–	–	–	–
–	–	–	–	1	1	4	1	–	1	–	–	1	2	2	2	2	1	1	–
2	1	1	–	–	–	–	–	1	–	–	1	–	–	1	1	–	–	–	–
–	3	1	1	2	–	–	–	–	1	1	–	1	–	–	–	1	–	–	–
–	–	–	–	1	–	–	–	–	–	–	1	–	1	1	1	1	–	–	–
–	–	–	1	–	–	1	–	–	–	1	1	–	1	–	–	1	1	–	–
1	1	–	1	–	–	2	2	–	4	1	2	1	–	1	–	–	–	–	–
2	1	2	3	2	1	1	1	2	–	–	–	1	1	1	1	3	–	–	–
1	–	2	5	4	4	5	1	1	2	4	3	2	5	4	4	2	2	–	–
2	3	3	5	5	8	5	3	6	2	1	2	4	5	7	4	1	2	–	–
2	1	2	2	2	2	4	5	7	5	6	9	11	14	4	11	7	4	1	–
1	–	–	1	–	–	2	4	6	3	4	3	5	4	2	6	1	1	–	–
1	1	2	1	2	2	2	1	1	2	2	6	6	10	2	5	6	3	1	–

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop	Persons.	Sex.					
NORFOLK Co., .	96,507	To.	96,507	1·70	1,645	1,645	266	86	49	34	34
		Ma.	46,476			816	131	49	24	17	17
		Fe.	50,031			829	135	37	25	17	17
Bellingham, .	1,223	Ma.	600	1·80	22	10	-	2	1	1	-
		Fe.	623			12	4	-	1	-	-
Braintree, .	3,855	Ma.	1,860	1·74	67	31	3	1	1	-	-
		Fe.	1,995			36	5	2	1	1	-
Brookline, .	8,057	Ma.	3,470	1·56	126	69	16	6	1	2	2
		Fe.	4,587			57	11	5	4	2	2
Canton, . .	4,516	Ma.	2,166	1·90	86	35	6	3	-	-	1
		Fe.	2,350			51	2	4	4	2	1
Cohasset, . .	2,182	Ma.	1,056	2·02	44	28	2	5	2	-	-
		Fe.	1,126			16	3	1	-	-	2
Dedham, . .	6,233	Ma.	2,917	1·85	115	58	12	1	4	-	1
		Fe.	3,316			57	10	1	2	1	-
Dover, . .	653	Ma.	334	1·68	11	5	-	-	-	-	-
		Fe.	319			6	-	-	-	-	-
Foxborough, .	2,950	Ma.	1,283	1·32	39	19	3	1	-	-	2
		Fe.	1,667			20	-	-	-	-	1
Franklin, . .	4,051	Ma.	1,958	1·28	52	24	5	3	1	-	1
		Fe.	2,093			28	5	-	-	1	1
Holbrook, .	2,130	Ma.	1,092	1·74	37	21	4	-	-	2	1
		Fe.	1,038			16	1	2	1	1	-
Hyde Park, .	7,088	Ma.	3,340	1·79	127	65	13	3	1	2	2
		Fe.	3,748			62	15	1	1	1	3
Medfield, . .	1,371	Ma.	633	1·60	22	7	1	-	-	-	-
		Fe.	738			15	1	-	-	-	-
Medway, . .	3,956	Ma.	1,947	1·79	71	31	4	-	-	-	-
		Fe.	2,009			40	3	1	-	-	-
Milton, . .	3,206	Ma.	1,495	1·56	50	21	3	-	-	-	-
		Fe.	1,711			29	5	-	1	-	1
Needham, .	5,252	Ma.	2,384	1·77*	59	31	3	3	2	-	2
		Fe.	2,868			28	4	1	1	-	2
Norfolk, . .	930	Ma.	466	1·51	14	5	-	-	-	-	-
		Fe.	464			9	-	1	-	-	-
Norwood, . .	2,345	Ma.	1,207	1·62	38	18	2	1	-	-	-
		Fe.	1,138			20	6	1	1	-	-
Quincy, . .	10,570	Ma.	5,407	1·63	172	99	19	10	4	3	2
		Fe.	5,163			73	17	5	3	2	2
Randolph, .	4,027	Ma.	2,006	1·81	73	40	5	-	-	2	-
		Fe.	2,021			33	8	3	1	-	-

* Deaths in Wellesley included.

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
83	35	55	78	82	61	55	46	62	38	62	69	87	96	94	93	55	21	3	1
46	16	26	34	48	24	27	24	32	19	27	38	47	54	53	42	12	8	-	1
37	19	29	44	34	37	28	22	30	19	35	31	40	42	41	51	43	13	3	-
-	-	-	1	-	1	-	-	-	-	-	1	-	-	2	1	-	-	-	-
-	-	-	-	-	-	1	1	-	-	1	-	1	1	2	-	-	-	-	-
2	-	2	2	3	2	-	-	2	-	4	2	2	2	3	-	-	-	-	-
2	-	1	4	1	2	1	2	1	1	2	1	1	-	1	6	-	1	-	-
2	2	2	4	3	3	3	2	4	1	2	3	1	3	2	3	2	-	-	-
1	-	4	2	3	4	4	2	3	-	1	-	1	2	-	3	1	2	-	-
2	-	4	3	1	2	2	1	1	2	1	-	3	1	2	-	-	-	-	-
4	2	-	3	1	2	2	1	3	-	2	2	5	1	4	1	1	3	1	-
-	1	-	-	1	-	-	1	-	-	1	3	2	3	2	4	-	1	-	-
2	-	-	3	1	-	-	-	-	-	1	-	1	-	-	1	1	-	-	-
4	2	1	4	3	3	4	2	2	1	-	2	3	5	1	2	1	-	-	-
2	2	3	2	5	2	2	1	-	1	2	1	4	3	2	7	4	-	-	-
-	-	-	1	-	-	-	-	-	-	1	-	3	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	2	1	-	-	-
1	-	1	1	-	-	-	-	1	-	1	1	2	-	2	-	1	2	-	-
1	2	2	2	-	-	-	1	-	-	3	-	2	1	1	1	3	-	-	-
-	-	1	1	2	-	1	1	2	1	-	1	-	1	2	1	-	-	-	-
-	-	-	2	1	1	-	1	1	3	1	2	3	1	2	2	1	-	-	-
1	1	-	1	-	-	-	-	-	2	1	-	2	3	2	1	-	-	-	-
1	1	-	2	-	-	1	1	-	-	-	-	1	1	2	-	1	-	-	-
6	2	3	2	6	3	3	1	1	-	3	1	3	3	5	2	-	-	-	-
1	2	2	2	3	7	4	1	4	4	1	4	3	2	-	1	-	-	-	-
-	-	-	-	-	-	1	-	1	-	1	-	-	1	1	-	-	1	-	-
1	-	1	-	1	-	-	-	-	1	-	2	-	-	3	3	2	-	-	-
1	1	-	2	-	-	1	2	3	2	-	2	1	5	3	3	1	-	-	-
3	-	1	3	1	2	-	2	2	-	2	2	1	1	2	4	9	-	1	-
1	-	1	1	-	-	1	1	3	-	1	1	2	1	1	2	1	1	-	-
-	-	2	2	1	2	1	1	1	1	-	1	4	2	3	-	-	-	1	-
5	1	1	1	1	2	-	-	1	-	-	2	1	4	2	-	-	-	-	-
1	1	3	2	4	1	-	-	2	-	2	-	1	1	-	2	-	-	-	-
-	-	-	-	2	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
-	-	-	-	-	1	-	1	-	-	-	1	-	1	1	-	2	1	-	-
2	-	1	-	1	1	-	-	1	2	-	2	2	1	-	2	-	-	-	-
-	-	1	1	-	-	1	-	1	1	1	1	1	1	3	-	-	-	-	-
5	-	1	2	6	5	6	4	3	2	5	5	3	5	4	3	1	-	-	1
5	2	1	4	-	3	2	1	2	-	1	5	-	4	3	4	6	1	-	-
1	-	2	1	6	-	2	3	2	2	-	1	4	4	-	3	1	1	-	-
1	1	1	1	1	1	2	1	-	-	4	-	2	4	-	2	-	-	-	-

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct to Pop.	Persons.	Sex.					
Norfolk—Con.											
Sharon, . .	1,492	Ma.	741	1·27	19	9	1	–	–	–	–
		Fe.	751			10	2	1	–	–	–
Stoughton, .	4,875	Ma.	2,428	1·85	90	44	5	1	2	1	–
		Fe.	2,447			46	5	2	–	–	–
Walpole, . .	2,494	Ma.	1,239	1·92	48	22	3	1	2	–	1
		Fe.	1,255			26	4	1	–	1	1
Wellesley,* .	–	Ma.	–	–	34	14	3	2	1	–	1
		Fe.	–			20	2	–	2	1	1
Weymouth, .	10,570	Ma.	5,256	1·83	193	90	17	5	1	3	1
		Fe.	5,314			103	19	5	2	4	–
Wrentham, .	2,481	Ma.	1,191	1·45	36	20	1	1	1	1	–
		Fe.	1,290			16	3	–	–	–	–
PLYMOUTH Co.,	74,018	To.	74,018	1·85	1,370	1,370	189	48	37	24	19
		Ma.	36,853			670	108	18	19	14	10
		Fe.	37,165			700	81	30	18	10	9
Abington, . .	3,697	Ma.	1,844	1·65	61	34	7	1	–	–	1
		Fe.	1,853			27	2	2	–	–	1
Bridgewater, .	3,620	Ma.	1,835	1·80	65	29	3	–	1	1	–
		Fe.	1,785			36	3	1	1	1	–
(St. Workhouse),	–	Ma.	–	–	10	10	–	–	–	–	–
		Fe.	–			–	–	–	–	–	–
Brockton, . .	13,308	Ma.	6,823	2·29	311	160	43	6	7	7	2
		Fe.	6,785			151	27	8	6	4	1
Carver, . .	1,039	Ma.	525	1·54	16	5	–	–	–	–	–
		Fe.	514			11	1	–	–	–	1
Duxbury, . .	2,196	Ma.	1,053	2·09	46	21	1	–	–	–	–
		Fe.	1,143			25	3	–	1	–	–
E. Bridgewater,	2,710	Ma.	1,366	2·32	63	38	5	–	2	2	1
		Fe.	1,344			25	4	2	4	–	2
Halifax, . .	542	Ma.	279	1·29	7	3	–	–	–	–	–
		Fe.	263			4	1	–	–	–	–
Hanover, . .	1,897	Ma.	918	2·06	38	15	2	1	–	–	1
		Fe.	979			23	3	–	–	–	–
Hanson, . .	1,309	Ma.	655	1·76	23	11	2	–	2	–	–
		Fe.	654			12	2	–	–	–	–
Hingham, .	4,485	Ma.	2,149	1·69	76	38	5	3	1	–	1
		Fe.	2,336			38	2	1	–	1	–
Hull, . .	385	Ma.	209	2·86	11	8	–	–	2	–	–
		Fe.	175			3	–	–	–	–	–
Kingston, . .	1,524	Ma.	717	1·84	28	12	–	1	–	1	1
		Fe.	807			16	2	–	–	–	–

* Incorporated April 6, 1881.

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
-	-	-	-	-	-	-	-	-	-	-	2	-	-	3	3	-	-	-	-
1	-	-	1	-	-	-	-	-	-	1	-	-	2	1	-	1	-	-	-
2	1	1	4	4	2	1	3	2	-	1	4	-	3	2	3	-	2	-	-
4	1	1	4	4	-	2	-	2	-	2	3	1	5	2	3	3	2	-	-
3	-	-	1	-	-	-	1	-	1	-	-	2	-	4	3	-	-	-	-
2	-	2	-	1	1	1	1	2	-	1	1	2	1	-	-	4	-	-	-
1	-	1	-	1	-	-	-	-	-	1	-	1	1	-	1	-	-	-	-
1	2	1	2	-	-	-	1	-	2	1	1	-	2	-	-	-	1	-	-
7	4	3	1	7	-	2	1	3	2	4	3	8	6	6	4	2	-	-	-
4	2	2	1	5	7	2	2	6	5	6	4	4	4	9	5	3	2	-	-
-	1	1	1	1	-	-	1	-	1	-	2	2	1	3	1	1	-	-	-
-	1	1	1	1	1	2	1	-	-	-	-	-	1	-	4	-	-	-	-
70	40	38	72	49	45	48	31	43	53	45	64	70	101	106	94	54	25	3	2
43	21	18	35	21	14	19	11	15	30	26	28	44	49	49	44	22	11	1	-
27	19	20	37	28	31	29	20	28	23	19	36	26	52	57	50	32	14	2	2
3	-	-	3	-	1	-	-	1	1	2	3	2	5	2	-	1	-	1	-
2	1	1	1	1	-	2	-	-	3	3	1	1	1	2	2	1	-	-	-
1	-	1	1	1	2	1	-	-	3	3	4	1	1	1	1	3	-	-	-
1	1	1	1	1	2	1	3	-	4	-	1	2	1	4	4	2	1	-	-
-	-	-	-	-	-	2	1	1	2	2	-	-	2	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	8	8	9	7	5	5	1	1	4	-	2	7	6	4	6	1	1	-	-
11	8	5	15	11	8	7	3	7	4	2	5	4	3	9	2	1	-	-	-
-	1	-	1	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-
-	-	-	-	1	-	1	1	1	-	-	1	1	-	1	-	-	2	-	-
-	-	-	1	-	-	-	2	-	1	2	1	1	3	4	3	1	1	-	-
-	1	1	2	1	2	-	1	-	2	1	1	-	2	4	-	1	1	1	-
3	1	2	2	1	1	-	3	2	2	2	1	1	2	3	1	1	-	-	-
3	1	-	-	1	-	-	1	-	1	-	1	1	1	1	2	-	-	-	-
-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-
-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	-	-	-	-	-
-	2	-	2	1	1	-	-	-	-	-	-	2	-	-	2	1	-	-	-
1	-	2	-	1	1	1	3	-	-	-	2	1	3	1	3	-	-	-	1
-	-	-	-	-	-	1	-	1	-	-	2	-	1	2	-	-	-	-	-
-	2	-	1	-	-	2	-	-	-	-	1	-	2	-	1	-	1	-	-
2	2	-	1	-	-	1	-	1	1	1	3	2	3	3	4	4	-	-	-
-	-	1	2	1	3	-	1	3	4	-	3	3	2	6	2	2	1	-	-
1	-	-	-	1	-	-	1	1	-	1	-	1	-	-	-	-	-	-	-
1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
-	-	-	-	-	-	-	-	-	2	-	-	2	-	1	3	1	-	-	-
-	-	-	-	-	-	-	-	-	-	2	-	3	2	2	4	1	-	-	-

Table VII. — Continued.

Counties and Towns.	Population — 1880. Persons.	Sex.		Deaths. Per ct. to Pop.	Deaths. Persons.	Deaths. Sex.	Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
Plymouth—Con.											
Lakeville,	1,008	Ma.	494	2·08	21	10	-	-	-	-	-
		Fe.	514			11	3	-	-	-	-
Marion,	958	Me.	450	1·67	16	5	1	-	-	-	-
		Fe.	508			11	1	-	-	-	-
Marshfield,	1,781	Me.	874	1·80	32	13	2	-	1	-	-
		Fe.	907			19	-	-	-	-	-
Mattapoisett,	1,365	Ma.	644	1·39	19	8	-	-	-	-	-
		Fe.	721			11	1	1	-	-	1
Middleborough,	5,237	Ma.	2,553	1·47	77	33	5	-	-	1	-
		Fe.	2,684			44	-	1	1	-	1
Pembroke,	1,405	Ma.	729	1·71	24	9	-	1	-	-	-
		Fe.	676			15	-	2	-	-	-
Plymouth,	7,093	Ma.	3,484	1·69	120	55	10	2	-	-	-
		Fe.	3,609			65	11	6	-	1	1
Plympton,	694	Ma.	339	1·30	9	3	-	-	-	-	-
		Fe.	355			6	1	-	-	-	-
Rochester,	1,043	Ma.	504	1·73	18	10	3	-	-	-	-
		Fe.	539			8	-	-	-	-	-
Rockland,	4,553	Ma.	2,321	1·32	60	32	3	-	1	1	1
		Fe.	2,232			28	3	2	1	2	-
Scituate,	2,466	Ma.	1,240	2·23	55	26	1	1	1	-	-
		Fe.	1,226			29	2	1	-	-	-
So. Abington,	3,024	Ma.	1,573	1·49	45	19	6	-	1	-	-
		Fe.	1,451			26	5	1	1	-	1
So. Scituate,	1,820	Ma.	925	1·98	36	20	2	1	-	1	-
		Fe.	895			16	1	-	-	1	-
Wareham,	2,896	Ma.	1,509	1·55	45	23	5	1	-	-	-
		Fe.	1,387			22	2	2	1	-	-
W. Bridgewater,	1,665	Ma.	842	2·28	38	20	2	-	-	-	2
		Fe.	823			18	1	-	2	-	-
SUFFOLK CO.,	387,927	To.	387,927	2·47	9,578	9,578	2207	671	373	243	172
		Ma.	183,995			4,830	1219	353	197	141	81
		Fe.	203,932			4,747	987	318	176	102	91
		Un.	-	-	-	1	1	-	-	-	-
Boston,	362,839	Ma.	172,268	2·50	9,075	4,570	1163	334	188	133	76
		Fe.	190,571			4,505	934	304	166	98	87
Chelsea,	21,782	Ma.	10,023	2·01	438	223	52	14	7	7	5
		Fe.	11,759			214	46	14	10	4	4
		Un.	-	-	-	1	1	-	-	-	-
Revere,	2,263	Ma.	1,193	1·68	38	25	1	3	2	1	-
		Fe.	1,070			13	1	-	-	-	-
Winthrop,	1,043	Ma.	511	2·59	27	12	3	2	-	-	-
		Fe.	532			15	6	-	-	-	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
2	-	-	-	-	-	1	-	-	-	-	1	1	-	1	4	-	-	-	-
-	-	-	-	-	-	2	-	-	-	-	1	-	2	-	1	1	1	-	-
-	-	1	1	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
-	-	-	-	-	1	-	-	1	-	-	2	-	1	1	3	1	-	-	-
-	-	-	1	-	-	-	-	-	-	-	-	1	1	2	4	1	-	-	-
-	-	-	-	-	1	1	-	3	-	2	1	-	1	1	5	2	1	-	1
-	-	-	-	-	-	-	-	1	1	-	1	-	-	2	-	-	3	-	-
-	-	1	-	1	-	-	1	-	1	-	1	-	-	2	1	-	-	-	-
1	1	-	1	1	2	1	1	1	1	2	2	2	5	2	3	1	-	-	-
1	1	1	2	4	1	2	-	6	-	3	3	1	2	3	1	5	4	1	-
-	-	1	-	-	-	-	-	-	-	1	-	1	2	2	1	-	-	-	-
2	-	-	-	-	-	-	-	1	-	-	2	1	2	1	2	2	-	-	-
4	4	1	1	-	-	1	-	-	5	3	1	5	7	5	3	3	-	-	-
1	1	2	4	-	6	3	1	2	2	3	3	3	5	3	5	1	1	-	-
-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-
-	-	-	-	-	-	1	-	-	1	-	-	1	1	1	-	-	-	-	-
-	-	-	1	-	-	-	-	-	-	-	-	1	1	2	1	-	1	-	-
-	-	-	1	-	-	-	-	-	-	-	-	-	4	-	1	1	1	-	-
3	1	-	5	2	-	3	-	2	2	3	1	2	-	1	1	-	-	-	-
1	-	1	-	1	1	3	1	2	-	1	1	-	3	2	2	1	-	-	-
1	-	-	2	2	-	-	-	1	1	1	2	3	2	4	1	1	2	-	-
1	1	1	1	-	-	1	-	-	-	-	3	1	7	4	2	4	-	-	-
2	-	1	1	-	1	-	-	-	2	-	-	2	2	-	1	-	-	-	-
1	1	-	2	1	1	1	-	1	-	2	1	-	-	3	3	1	-	-	-
-	-	1	1	1	-	1	1	-	1	1	-	2	3	1	1	-	2	-	-
-	-	-	-	2	2	-	1	-	-	-	1	-	2	-	2	4	-	-	-
-	-	1	1	2	-	-	1	1	-	1	1	3	2	2	-	1	1	-	-
-	1	1	3	1	-	-	2	1	-	-	1	1	2	3	1	-	-	-	-
-	-	1	-	1	1	1	-	1	-	1	1	2	1	2	4	-	-	-	-
1	-	2	1	-	1	1	1	-	1	-	-	1	2	3	1	-	-	-	-
429	165	269	470	521	468	434	390	390	351	337	356	369	336	250	193	106	38	16	24
196	74	122	230	245	207	231	198	190	188	181	177	190	159	118	72	38	9	3	11
233	91	147	240	276	261	203	192	200	163	156	179	179	177	132	121	68	29	13	13
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
187	69	115	222	233	200	217	190	179	179	171	162	175	145	111	65	34	9	3	10
219	86	141	231	265	248	195	184	187	159	142	166	173	165	125	115	62	28	12	13
9	5	7	7	11	3	12	5	8	9	10	12	13	10	6	7	3	-	-	1
11	5	6	8	9	12	7	7	12	4	11	10	6	11	6	5	4	1	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	1	-	2	1	3	3	-	-	2	1	3	1	-	1	-	-	-
3	-	-	-	1	1	1	1	1	-	-	2	-	-	1	1	-	-	-	-
-	-	-	-	1	2	1	-	-	-	-	1	1	1	-	-	-	-	-	-
-	-	-	1	1	-	-	-	-	-	3	1	-	1	-	-	2	-	-	-

Table VII. — Continued.

Counties and Towns.	Population — 1880.			Deaths.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop.	Persons.	Sex.					
Worcester Co.,	226,897	To.	226,897	1·85	4,189	4,189	826	252	128	107	80
		Ma.	112,119			2,073	456	130	70	61	37
		Fe.	114,778			2,115	369	122	58	46	43
		Un.	-	-	-	1	1	-	-	-	-
Ashburnham, .	1,666	Ma.	793	2·10	35	17	2	1	-	-	-
		Fe.	873			18	1	1	-	1	-
Athol, . .	4,307	Ma.	2,112	1·81	78	35	4	3	1	2	2
		Fe.	2,195			43	7	1	1	-	1
Auburn, . .	1,317	Ma.	645	2·20	29	18	3	2	-	-	-
		Fe.	672			11	1	-	-	-	-
Barre, . .	2,419	Ma.	1,208	1·98	48	18	3	-	-	-	-
		Fe.	1,211			30	1	-	1	-	-
Berlin, . .	977	Ma.	498	1·23	12	4	-	-	-	-	-
		Fe.	479			8	2	-	-	-	-
Blackstone, .	4,907	Ma.	2,340	·86	42	23	1	1	1	-	-
		Fe.	2,567			19	4	-	1	-	-
Bolton, . .	903	Ma.	447	·44	4	1	-	-	-	-	-
		Fe.	456			3	1	-	-	-	-
Boylston, . .	854	Ma.	431	1·64	14	9	-	-	-	-	-
		Fe.	423			5	-	1	-	-	-
Brookfield, .	2,820	Ma.	1,387	2·13	60	35	4	1	2	2	1
		Fe.	1,433			25	6	2	1	-	-
Charlton, . .	1,900	Ma.	970	1·37	26	15	-	1	-	-	-
		Fe.	930			11	1	1	-	-	-
Clinton, . .	8,029	Ma.	3,676	1·67	134	60	21	3	-	3	2
		Fe.	4,353			74	14	7	3	1	1
Dana, . .	736	Ma.	362	1·63	12	7	2	-	-	-	-
		Fe.	374			5	1	1	-	-	-
Douglas, . .	2,241	Ma.	1,132	2·10	47	27	9	3	-	-	-
		Fe.	1,109			20	4	1	1	-	-
Dudley, . .	2,803	Ma.	1,358	1·39	39	16	7	1	2	-	-
		Fe.	1,445			23	1	5	2	-	-
Fitchburg, .	12,429	Ma.	6,052	1·85	230	103	23	8	2	3	2
		Fe.	6,377			127	30	4	3	2	3
Gardner, . .	4,988	Ma.	2,543	1·78	89	38	2	1	5	1	1
		Fe.	2,445			51	7	4	2	2	1
Grafton, . .	4,030	Ma.	1,986	2·08	84	35	3	1	2	1	-
		Fe.	2,044			49	7	3	3	2	1
Hardwick, .	2,233	Ma.	1,164	1·88	42	21	6	-	1	-	-
		Fe.	1,069			21	2	-	-	-	-
Harvard, . .	1,253	Ma.	595	2·23	28	12	-	-	-	-	-
		Fe.	658			16	1	1	-	-	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
182	105	136	212	186	148	126	140	109	139	159	179	195	228	223	168	93	34	10	24
88	50	62	93	71	51	64	72	48	68	90	98	104	116	107	72	40	14	3	11
94	55	74	119	115	97	62	68	61	71	69	81	91	112	119	96	53	20	7	13
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2	1	–	1	1	–	–	–	–	–	1	1	–	4	1	1	1	–	–	–
1	1	2	5	–	–	–	2	–	–	–	1	–	3	–	–	–	–	–	–
1	1	1	2	1	1	1	1	–	2	1	1	2	5	2	–	–	–	–	1
1	3	1	3	3	2	4	2	–	1	1	1	4	2	3	2	–	–	–	–
–	2	2	1	1	–	–	–	–	1	1	1	2	1	1	–	–	–	–	–
–	–	–	1	1	1	–	–	2	–	1	1	–	2	1	–	–	–	–	–
1	–	2	1	–	–	–	1	–	–	1	2	3	1	–	2	–	1	–	–
1	–	2	3	2	2	–	–	1	2	–	1	3	3	5	2	1	–	–	–
–	–	–	1	–	–	–	–	–	–	–	2	1	–	–	–	–	–	–	–
–	–	–	–	1	–	–	–	–	–	–	–	1	1	2	–	–	1	–	–
3	–	–	1	–	–	–	2	1	1	2	2	2	3	1	1	–	–	–	1
1	–	1	2	1	1	2	1	–	–	–	1	1	–	–	1	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–
–	–	–	1	–	–	–	–	2	1	–	1	1	1	2	–	–	–	–	–
–	–	–	1	–	–	–	1	–	–	–	–	–	1	–	1	–	–	–	–
2	1	–	1	–	–	–	2	1	1	3	4	1	4	3	2	–	–	–	–
3	2	1	1	–	–	–	1	1	2	1	–	–	2	–	1	1	–	–	–
2	–	–	–	–	–	1	1	3	2	–	–	–	1	3	1	–	–	–	–
–	1	–	2	–	1	–	–	–	–	1	–	1	–	1	1	1	–	–	–
2	3	3	1	3	2	3	2	–	3	1	–	1	1	1	3	1	–	1	–
2	2	3	3	8	5	2	2	–	4	5	4	–	–	1	3	3	–	–	1
–	–	–	1	–	–	–	1	–	–	2	–	1	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	2	–	–	–
–	–	–	3	1	2	–	2	1	–	1	2	1	1	1	–	–	–	–	–
2	–	1	1	–	–	2	1	–	2	–	2	–	–	–	2	1	–	–	–
–	–	–	1	–	–	2	–	1	1	–	–	–	1	–	–	–	–	–	–
1	–	1	2	1	1	1	–	1	1	1	–	1	1	1	–	1	1	–	–
5	3	6	4	4	1	5	6	1	3	5	9	2	7	2	–	1	–	1	–
2	1	3	8	4	9	11	3	5	1	3	2	8	9	7	6	2	1	–	–
5	1	–	3	–	–	1	–	–	1	3	4	1	3	1	4	1	–	–	–
5	1	3	5	3	4	2	–	1	1	1	2	1	2	1	3	–	–	–	–
1	1	2	2	–	1	–	1	1	3	3	2	2	4	2	3	–	–	–	–
1	1	3	1	–	3	1	2	1	4	–	1	3	4	2	1	3	1	1	–
1	–	1	–	2	–	1	–	–	1	–	–	–	–	4	2	1	–	1	–
–	1	–	3	–	2	–	–	–	1	2	1	–	1	3	2	1	1	–	1
–	–	1	2	–	–	–	1	–	–	1	–	1	–	2	2	1	1	–	–
1	1	–	–	1	–	–	1	–	–	1	1	1	2	1	4	–	–	–	–

TABLE VII. — Continued.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop.	Persons.	Sex.					
Worcester—Con.											
Holden, . .	2,499	Ma.	1,277	1·56	39	25	3	1	-	-	-
		Fe.	1,222			14	1	-	1	-	-
Hubbardston, .	1,386	Ma.	706	1·80	25	12	2	-	-	-	-
		Fe.	680			13	-	-	-	1	-
Lancaster, .	2,008	Ma.	928	1·94	39	15	3	1	-	-	-
		Fe.	1,079			24	1	-	-	-	-
Leicester, . .	2,779	Ma.	1,321	2·20	61	25	7	1	-	3	-
		Fe.	1,458			36	1	-	-	1	-
Leominster, .	5,772	Ma.	2,872	1·18	68	37	7	3	-	1	-
		Fe.	2,900			31	2	1	-	2	-
Lunenburg, .	1,101	Ma.	551	2·18	24	12	-	-	-	-	-
		Fe.	550			12	1	-	-	1	-
Mendon, . .	1,094	Ma.	546	2·19	24	8	1	-	-	-	-
		Fe.	548			16	1	-	-	-	2
Milford, . .	9,310	Ma.	4,642	1·61	150	82	17	3	-	2	-
		Fe.	4,668			68	7	1	-	2	1
Millbury, . .	4,741	Ma.	2,326	1·48	70	38	13	2	-	-	1
		Fe.	2,415			32	9	1	-	3	1
New Braintree,	610	Ma.	324	1·64	10	4	-	-	-	-	1
		Fe.	286			6	-	-	-	-	-
Northborough,	1,676	Ma.	818	1·91	32	16	5	2	1	-	-
		Fe.	858			16	5	-	-	-	1
Northbridge, .	4,053	Ma.	2,060	2·20	89	52	10	4	3	2	1
		Fe.	1,993			37	7	4	-	-	-
N. Brookfield, .	4,459	Ma.	2,201	1·73	77	38	6	2	5	2	2
		Fe.	2,258			39	5	4	3	1	4
Oakham, . .	869	Ma.	445	2·42	21	10	1	-	-	-	-
		Fe.	424			11	1	-	-	-	-
Oxford, . .	2,604	Ma.	1,293	1·69	44	23	2	4	1	1	-
		Fe.	1,311			21	1	2	-	-	-
Paxton, . .	592	Ma.	299	2·53	15	8	3	-	-	-	-
		Fe.	293			7	-	-	1	-	-
Petersham, .	1,109	Ma.	546	2·16	24	15	1	1	1	-	-
		Fe.	563			9	1	-	-	-	-
Phillipston, .	621	Ma.	319	2·74	17	7	-	-	-	-	-
		Fe.	302			10	-	1	-	-	-
Princeton, .	1,100	Ma.	545	2·18	24	10	2	-	-	-	-
		Fe.	555			14	2	-	1	-	-
Royalston, .	1,192	Ma.	592	1·76	21	13	2	1	-	-	-
		Fe.	600			8	-	-	-	-	-
Rutland, . .	1,059	Ma.	551	·94	10	6	1	1	-	-	-
		Fe.	508			4	-	-	-	-	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
2	2	-	3	1	-	-	1	-	-	2	3	2	2	-	2	1	-	-	-
1	1	1	1	1	-	-	-	2	1	2	-	1	1	-	-	-	-	-	-
-	-	2	-	-	-	-	-	-	-	1	1	-	2	2	-	2	-	-	-
-	-	1	-	-	1	-	-	-	-	-	3	-	2	4	1	-	-	-	-
1	-	-	-	1	-	-	-	-	2	1	-	1	1	-	1	2	1	-	-
2	2	-	-	-	-	-	2	1	1	2	2	3	6	1	-	1	-	-	-
-	1	-	3	-	-	-	-	-	-	2	1	2	1	1	3	-	-	-	-
5	1	2	1	6	2	2	-	2	2	1	1	1	5	-	2	-	1	-	-
2	1	1	1	-	1	3	2	1	-	2	1	4	5	1	-	1	-	-	-
-	1	-	3	1	4	2	2	2	-	1	-	4	2	2	2	-	-	-	-
-	-	1	-	-	-	-	-	-	1	-	2	3	1	2	-	2	-	-	-
-	-	-	-	-	1	-	-	-	-	1	-	2	-	4	2	-	-	-	-
-	-	-	-	1	-	-	1	1	-	-	-	1	1	-	1	1	-	-	-
1	-	3	-	1	-	-	-	-	2	-	3	1	-	1	-	1	-	-	-
4	2	3	5	5	5	-	3	2	5	4	6	5	5	2	2	-	1	-	1
2	2	5	5	7	4	1	3	3	2	3	5	5	1	2	4	2	-	1	-
3	2	1	3	1	-	-	1	2	1	-	2	1	1	-	1	3	-	-	-
1	-	1	-	2	2	-	-	2	-	-	2	-	1	3	4	-	-	-	-
-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	-	-	-	-
-	1	-	-	-	-	-	-	-	-	-	-	1	1	3	-	-	-	-	-
-	-	-	1	-	1	1	-	-	-	-	1	-	1	1	2	-	-	-	-
-	-	1	2	-	1	-	-	1	-	-	-	-	1	-	4	-	-	-	-
4	-	-	1	3	2	1	6	2	1	1	2	3	2	4	-	-	-	-	-
2	1	1	4	1	-	2	1	-	2	1	-	3	2	2	1	2	1	-	-
4	2	1	1	2	-	1	1	2	1	1	1	1	-	1	1	-	1	-	-
3	-	1	4	3	2	-	1	3	-	1	1	-	2	-	-	-	-	1	-
-	-	-	1	-	-	-	1	1	1	-	-	1	1	1	2	-	-	-	-
-	-	-	1	-	-	-	-	-	-	2	1	1	2	1	1	1	-	-	-
-	-	-	1	-	1	1	-	1	-	1	1	1	1	2	2	1	1	-	1
3	-	-	2	1	1	-	1	-	-	-	1	1	3	1	2	-	1	1	-
-	1	-	-	-	-	-	-	-	-	-	-	-	3	-	-	1	-	-	-
-	-	-	1	1	1	-	-	-	-	1	-	-	2	-	-	-	-	-	-
-	-	1	-	1	1	-	-	-	-	-	2	1	2	2	-	1	1	-	-
-	-	-	-	-	2	-	-	-	-	-	-	1	1	2	1	-	1	-	-
-	-	-	2	-	-	-	-	-	1	-	-	1	1	1	1	-	-	-	-
-	-	-	1	3	1	-	-	-	1	1	1	-	-	1	-	-	-	-	-
-	-	-	-	-	-	1	-	-	1	2	-	-	1	1	1	1	-	-	-
-	-	-	-	1	1	-	-	-	1	-	-	1	-	2	3	1	-	1	-
-	-	-	-	-	-	-	-	1	-	-	-	1	2	1	2	1	2	-	-
-	-	-	1	-	-	-	-	1	-	-	-	1	2	1	1	1	-	-	-
-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	1	-	-	-	-
1	-	-	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-

TABLE VII. — Concluded.

COUNTIES AND TOWNS.	POPULATION — 1880.			DEATHS.			Und. 1	1 to 2	2 to 3	3 to 4	4 to 5
	Persons.	Sex.		Per ct. to Pop	Persons.	Sex.					
Worcester—Con.											
Shrewsbury, .	1,500	Ma.	743	2·60	39	19	1	-	-	-	—
		Fe.	757			20	3	1	-	1	—
Southborough, .	2,142	Ma.	1,065	1·26	27	14	1	1	-	2	—
		Fe.	1,077			13	5	-	-	-	1
Southbridge, .	6,464	Ma.	3,140	2·12	137	61	14	5	3	4	2
		Fe.	3,324			76	21	2	-	1	2
Spencer, . .	7,466	Ma.	3,864	1·88	140	78	37	6	6	2	2
		Fe.	3,602			62	22	9	2	-	1
Sterling, . .	1,414	Ma.	695	2·69	38	17	1	-	-	-	1
		Fe.	719			21	4	1	-	-	-
Sturbridge, .	2,062	Ma.	996	2·18	45	25	4	2	-	2	1
		Fe.	1,066			20	8	2	-	-	-
Sutton, . .	3,105	Ma.	1,574	1·96	61	30	4	1	1	-	1
		Fe.	1,531			31	7	1	1	1	1
Templeton, .	2.789	Ma.	1,414	2·40	67	28	3	1	1	-	1
		Fe.	1,375			39	4	1	2	1	1
Upton, . .	2,023	Ma.	914	1·58	32	16	-	-	-	1	-
		Fe.	1,109			16	1	-	-	-	-
Uxbridge, .	3,111	Ma.	1,522	1·03	32	20	4	-	-	1	-
		Fe.	1,589			12	-	1	-	-	-
Warren, . .	3,889	Ma.	1,970	1·98	77	39	8	3	1	-	-
		Fe.	1,919			38	7	2	1	1	-
Webster, . .	5,696	Ma.	2,779	2·46	140	70	18	7	3	5	-
		Fe.	2,917			70	16	5	2	4	4
Westborough, .	5,214	Ma.	2,626	1·94	101	41	8	4	3	-	1
		Fe.	2,588			60	4	7	3	2	3
W. Boylston, .	2,994	Ma.	1,473	1·84	55	31	12	2	1	1	-
		Fe.	1,521			24	5	4	-	-	-
W. Brookfield, .	1,917	Ma	925	·57	11	4	1	-	-	-	-
		Fe.	992			7	1	-	-	-	-
Westminster, .	1,652	Ma.	792	1·94	32	11	2	-	1	-	-
		Fe.	860			21	-	1	-	-	1
Winchendon, .	3,722	Ma.	1,838	1·83	68	34	6	2	1	3	1
		Fe.	1,884			34	5	-	-	1	-
Worcester, .	58,291	Ma.	28,927	1·97	1,150	585	156	44	22	17	14
		Fe.	29,364			564	120	39	23	15	13
		Un.	-	-	-	1	1	-	-	-	-

Age and Sex, by Towns.

5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 & over.	Unknown.
-	1	-	1	-	-	-	1	1	-	-	5	2	3	1	1	1	1	-	-
3	-	1	-	-	-	-	1	2	1	1	-	2	1	2	-	1	-	-	-
1	-	1	1	-	-	1	2	-	-	-	-	1	-	3	-	-	-	-	-
-	-	-	1	-	1	-	-	-	1	1	-	1	-	-	-	1	1	-	-
1	2	2	4	-	-	1	-	4	1	2	1	2	4	2	4	1	1	-	1
6	5	3	2	8	3	2	2	2	2	-	4	1	4	1	2	1	2	-	
3	-	2	-	3	1	2	1	-	1	3	-	2	-	6	-	1	-	-	-
2	2	1	4	2	3	2	4	-	-	2	-	1	1	2	1	1	-	-	-
-	1	-	2	1	-	-	-	-	3	-	2	2	1	2	-	1	-	-	-
1	-	-	1	-	-	-	1	-	-	1	1	4	2	1	3	1	-	-	-
1	-	-	1	1	1	-	1	-	1	2	2	-	2	4	-	-	-	-	-
-	-	1	-	1	1	-	1	-	1	1	1	1	-	1	1	-	-	-	-
-	-	3	-	-	1	2	2	-	1	3	1	6	-	1	1	-	-	-	2
2	1	-	1	-	2	-	1	-	2	-	2	-	4	-	3	1	-	-	1
3	1	-	2	1	-	2	-	-	-	2	1	3	4	2	1	-	-	-	-
4	-	1	2	1	1	1	1	-	-	2	4	-	2	7	2	1	1	-	-
-	-	1	-	-	-	-	2	3	-	2	-	1	3	2	-	1	-	-	-
-	-	1	2	-	-	-	3	-	1	2	-	-	-	4	1	1	-	-	-
-	-	-	1	-	-	-	-	1	-	2	1	2	4	1	1	2	-	-	-
-	-	-	2	2	-	-	1	-	1	1	-	-	-	2	1	1	-	-	-
1	-	1	2	1	-	1	2	2	2	3	1	5	2	-	2	2	-	-	-
1	-	3	1	6	2	1	2	3	1	1	1	1	1	3	-	-	-	-	-
7	4	-	-	2	1	1	-	-	2	1	3	3	4	3	3	1	1	-	1
9	4	4	4	2	1	2	2	2	-	1	3	1	2	-	2	-	-	-	-
1	3	4	1	2	3	3	-	1	-	-	-	2	2	2	1	-	-	-	-
5	1	2	8	3	-	1	5	1	-	3	-	-	4	3	3	2	-	-	-
2	2	1	1	2	-	-	1	-	2	-	-	1	1	2	-	-	-	-	-
-	1	-	-	3	-	-	-	2	2	-	1	2	-	2	1	-	-	1	-
-	-	-	-	1	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
-	-	-	1	-	2	-	-	1	-	-	-	-	-	-	1	-	1	-	-
-	-	-	-	-	-	1	-	-	-	1	-	1	1	1	2	1	-	-	-
1	2	1	-	2	1	-	1	2	1	1	2	1	2	1	-	1	-	-	-
1	-	1	1	3	2	-	-	1	-	3	3	1	1	2	1	1	-	-	-
-	-	-	3	1	-	-	1	1	2	1	4	1	4	3	5	1	1	-	-
22	12	18	28	26	24	28	23	11	20	24	23	20	14	19	11	4	2	-	3
18	16	19	20	30	25	21	16	16	25	18	20	25	17	28	12	15	5	1	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE VIII. — CAUSES OF DEATH. — ALPHABETICAL ARRANGEMENT.

Distinguishing by Months, by Age, and by Sex, the Registered Number of Deaths from various specified causes (alphabetically arranged), during the year

1881.

[Still-births not included in this Table.]

AGGREGATE.

SEX.	DEATHS.				MONTHS.													AGES.											
	SEX.			Totals.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.	Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Unknown.
	Males.	Fem.	Unk.																										
PERSONS .	.	.	.	36,458	3081	2905	3139	3207	2890	2449	3033	3780	3233	3107	2682	2952	–	11970	1500	748	1217	3648	2900	2623	2646	3150	3402	2488	166
Males . .	18,147	.	.	.	1569	1410	1506	1552	1396	1183	1556	1977	1629	1579	1325	1465	–	6448	749	351	512	1687	1302	1291	1364	1615	1687	1034	107
Females .	.	18,296	.	.	1512	1492	1631	1651	1494	1265	1475	1803	1604	1526	1357	1486	–	5507	751	397	705	1961	1598	1332	1282	1535	1715	1454	59
Unknown .	.	.	15	.	–	3	2	4	–	1	2	–	–	2	–	1	–	15	–	–	–	–	–	–	–	–	–	–	–

TABLE VIII.—Continued.

SEX.	DEATHS.				MONTHS.													CAUSES OF DEATH.	AGES.											
	Sex.																													
	Males.	Fem.	Unk.	Totals.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.		Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Unknown.
Fem.	.	10	.	10	1	–	–	–	–	1	1	1	1	3	–	2	–	Abortion, . .	–	–	–	1	6	3	–	–	–	–	–	–
Males	41	.	.	86	3	3	1	5	6	3	2	4	6	1	3	4	–	Abscess, . .	13	–	1	–	7	2	5	1	9	2	–	1
Fem.	.	45	.	.	6	7	3	2	5	3	–	4	4	1	6	4	–	" . .	12	2	2	1	9	4	6	3	2	4	–	–
Males	5	.	.	10	–	1	2	2	–	–	–	–	–	–	–	–	–	Abscess, Lumbar,	–	1	1	–	2	–	–	1	–	–	–	–
Fem.	.	5	.	.	1	–	–	–	2	–	1	–	–	1	–	–	–	" "	1	–	–	1	–	1	–	1	1	–	–	–
Males	2	.	.	4	–	1	–	–	1	–	–	–	–	–	–	–	–	Amputation, .	–	–	–	–	1	–	–	1	–	–	–	–
Fem.	.	2	.	.	–	1	–	–	–	–	–	–	1	–	–	–	–	" .	–	–	–	–	–	–	–	–	–	2	–	–
Males	57	.	.	139	5	4	5	5	9	2	5	9	3	5	3	2	-	Anæmia, . .	21	3	–	–	6	1	4	4	7	7	3	1
Fem.	.	82	.	.	9	9	12	8	6	5	6	4	2	11	5	5		" . .	15	–	2	–	11	18	10	9	9	6	1	1
Males	23	.	.	31	2	–	2	5	–	4	–	5	1	3	1	–	–	Aneurism, . .	–	–	–	–	1	6	7	4	2	1	2	–
Fem.	.	8	.	.	–	2	–	1	1	–	–	–	1	–	1	2	–	" . .	–	1	–	–	–	–	–	2	3	1	1	–
Males	18	.	.	33	3	1	2	1	–	1	–	2	2	2	2	2	–	Angina Pectoris,	–	1	–	–	1	1	2	2	4	4	3	–
Fem.	.	15	.	.	1	–	1	1	3	2	–	2	1	2	–	2	–	" "	–	–	–	–	–	1	2	2	3	3	4	–
Males	355	.	.	718	43	35	27	33	20	18	29	29	24	29	29	39	–	Apoplexy, . .	–	1	–	–	15	16	47	56	92	88	39	1
Fem.	.	363	.	.	27	36	27	33	25	31	33	26	34	21	38	32	–	" . .	–	1	1	–	4	21	38	58	83	96	60	1
Males	3	.	.	4	–	–	–	–	1	1	–	–	1	–	–	–	–	Arthritis, . .	–	–	–	–	1	–	1	–	1	–	–	–
Fem.	.	1	.	.	–	–	–	–	–	–	1	–	–	–	–	–	–	" . .	–	–	–	–	–	–	–	–	1	–	–	–

Table VIII. — Continued.

SEX.	DEATHS.				MONTHS.													CAUSES OF DEATH.	AGES.											
	Sex. Males.	Sex. Fem.	Sex. Unk.	Totals.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown		Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Unknown.
Males	12	.	.	26	1	1	1	–	–	–	1	1	1	3	3	–	–	Ascites, . .	–	1	1	–	1	–	4	3	2	–	–	–
Fem.	.	14	.	.	1	4	1	1	–	1	1	1	3	–	1	–	–	" . .	1	–	–	–	–	1	3	–	7	2	–	–
Males	71	.	.	132	5	3	3	14	7	4	5	5	5	5	3	12	–	Asthma, . .	11	1	1	–	3	5	4	14	16	13	3	–
Fem.	.	61	.	.	8	4	6	6	3	7	–	7	2	5	6	7	–	" . .	5	2	–	–	–	6	7	11	9	11	10	–
Males	38	.	.	77	5	2	2	3	1	1	7	6	3	2	3	3	–	Bowels, Dis. of, .	23	–	1	–	2	2	4	2	1	2	1	–
Fem.	.	39	.	.	1	3	3	3	5	1	3	7	1	4	7	1	–	" " .	10	2	–	–	3	3	3	4	6	6	2	–
Males	179	.	.	340	10	12	12	18	14	13	21	21	14	19	13	12	–	Brain, Disease of,	46	3	4	6	9	16	20	19	15	33	8	–
Fem.	.	161	.	.	12	11	14	22	12	12	13	15	11	10	15	14	–	" " .	43	6	3	4	12	15	13	12	22	21	10	–
Males	56	.	.	112	6	5	4	4	4	2	6	4	4	3	6	8	–	Brain, Softening,	–	1	–	–	1	2	7	6	13	19	7	–
Fem.	.	56	.	.	3	6	3	7	6	7	4	5	2	8	2	3	–	" "	–	1	1	1	1	1	11	5	11	16	6	2
Males	406	.	.	843	56	50	55	38	35	24	20	20	20	29	25	34	–	Bronchitis, . .	262	9	4	1	7	9	9	16	29	43	16	1
Fem.	.	437	.	.	54	60	58	41	44	27	17	16	22	27	32	39	–	" . .	225	10	1	3	4	13	13	28	34	61	45	–
Males	48	.	.	101	4	6	4	4	3	6	4	2	–	7	7	1	–	Burns and Scalds,	34	3	1	–	5	1	1	1	2	–	–	–
Fem.	.	53	.	.	7	8	6	4	5	2	2	5	2	3	4	5	–	" "	19	4	7	4	2	3	5	1	4	3	1	–
Males	174	.	.	562	13	19	17	17	17	14	14	15	18	11	10	9	–	Cancer, . .	1	–	–	-	4	14	12	29	51	46	16	1
Fem.	.	388	.	.	35	23	34	30	33	29	47	31	33	30	32	31	–	" . .	–	–	–	1	6	36	83	107	76	49	26	4
Males	10	.	.	27	1	1	–	–	2	–	-	3	–	1	1	1	–	Cancer of Bowels,	–	–	–	–	-	–	1	3	3	2	1	–
Fem.	.	17	.	.	2	2	3	3	1	1	1	2	–	1	–	1	–	" "	–	–	–	1	–	1	2	2	8	2	1	–

Males	68	.	.	133	4	2	7	3	9	3	3	5	5	10	8	9	-	Cancer of Liver,	-	-	-	-	3	7	19	16	15	8	-	-
Fem.	.	65	.	.	3	5	8	3	3	6	3	3	9	8	6	8	-	“ “	-	-	-	-	3	3	15	13	14	10	7	-
Males	84	.	.	150	5	7	8	6	7	5	11	4	7	7	6	11	-	Cancer of Stom.,	-	-	-	-	-	3	10	19	26	19	7	-
Fem.	.	66	.	.	8	3	7	6	7	6	5	8	4	4	3	5	-	“ “	-	-	-	-	1	2	5	13	22	20	3	-
Fem.	.	73	.	73	5	7	2	10	5	6	8	9	6	4	6	5	-	Cancer of Uterus,	-	-	-	-	1	16	17	22	12	3	2	-
Males	8	.	.	14	-	-	3	-	-	2	-	1	1	-	1	-	-	Carbuncle,	-	-	-	-	1	1	-	1	2	1	2	-
Fem.	.	6	.	.	1	1	-	-	-	-	-	-	3	-	1	-	-	“	-	-	-	-	-	-	3	2	1	-	-	-
Males	3	.	.	7	-	-	-	1	-	-	-	2	-	-	-	-	-	Caries of Bone,	1	1	-	-	-	-	-	-	1	-	-	-
Fem.	.	4	.	.	1	-	-	-	-	1	1	1	-	-	-	-	-	“ “	-	1	1	-	1	-	-	-	1	-	-	-
Males	325	.	.	409	21	25	20	32	18	33	31	44	30	22	27	22	-	Casualty,	25	10	14	23	61	46	45	42	35	13	8	3
Fem.	.	84	.	.	7	3	6	7	8	10	12	5	7	4	4	11	-	“	12	7	2	2	4	3	5	6	13	16	13	1
Males	3	.	.	9	-	-	-	-	-	1	-	1	-	-	1	-	-	Cellulitis,	1	1	-	-	-	-	-	-	1	-	-	-
Fem.	.	6	.	.	-	1	-	1	1	1	-	1	-	-	1	-	-	“	2	-	-	-	3	1	-	-	-	-	-	-
Males	575	.	.	1058	44	48	52	44	40	45	57	65	60	48	31	41	-	Cephalitis,	366	57	20	7	30	20	25	19	15	13	3	-
Fem.	.	482	.	.	37	36	38	44	49	38	44	47	50	35	34	30	-	“	305	46	17	21	25	16	15	14	10	8	2	3
Unk.	.	.	1	.	-	-	-	1	-	-	-	-	-	-	-	-	-	“	1	-	-	-	-	-	-	-	-	-	-	-
Males	78	.	.	157	9	3	10	6	7	2	9	9	3	4	6	10	-	Cer.Sp.Meningitis,	43	4	6	7	7	5	3	1	1	1	-	-
Fem.	.	79	.	.	2	4	7	10	12	10	5	6	10	5	-	8	-	“ “	40	10	3	7	6	1	2	4	3	-	2	1
Fem.	.	156	.	156	10	18	17	15	18	13	12	9	15	10	11	8	-	Childbirth,	-	-	-	3	67	75	9	-	-	-	-	2
Males	2	.	.	4	-	-	-	-	1	-	-	1	-	-	-	-	-	Chloral Hydr.,	-	-	-	-	-	-	2	-	-	-	-	-
Fem.	.	2	.	.	-	-	-	-	-	-	-	-	-	1	1	-	-	“ “	-	-	-	-	1	-	-	-	1	-	-	-
Males	28	.	.	68	-	-	-	-	-	-	7	10	7	4	-	-	-	Cholera,	-	2	2	-	-	1	4	5	8	1	5	-
Fem.	.	40	.	.	1	1	2	-	-	2	12	10	8	3	1	-	-	“	-	4	2	4	1	8	5	4	3	4	5	-

Table VIII. — Continued.

SEX.	DEATHS.				MONTHS.													CAUSES OF DEATH.	AGES.											
	Sex.			Totals.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.		Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Unknown.
	Males.	Fem.	Unk.																											
Males	993	.	.	1861	6	4	8	4	6	16	209	456	206	67	7	4	–	Cholera Infantum,	993	–	–	–	–	–	–	–	–	–	–	–
Fem.	.	868	.	.	3	1	6	3	7	17	175	375	197	69	10	5	–	" "	868	–	–	–	–	–	–	–	–	–	–	–
Males	1	.	.	6	–	–	–	–	–	–	–	1	–	–	–	–	–	Chorea, . .	–	–	–	1	–	–	–	–	–	–	–	–
Fem.	.	5	.	.	1	–	–	2	1	–	–	–	–	1	–	–	–	" . .	–	2	2	–	–	–	–	–	–	–	1	–
Males	2640	.	.	5886	217	209	242	231	228	202	203	211	188	251	221	237	–	Consumption, .	143	21	28	203	755	520	360	268	187	125	21	9
Fem.	.	3246	.	.	258	259	288	315	285	249	239	270	257	277	258	291	–	" .	128	29	79	341	1027	649	401	230	202	122	29	9
Males	342	.	.	665	25	28	31	30	30	28	35	28	38	18	21	30	–	Convulsions, .	316	10	3	–	6	2	5	–	–	–	–	–
Fem.	.	322	.	.	23	17	37	42	40	18	30	34	22	22	18	19	–	" .	283	9	2	4	11	5	5	2	1	–	–	–
Unk.	.	.	1	.	–	–	–	1	–	–	–	–	–	–	–	–	–	" .	1	–	–	–	–	–	–	–	–	–	–	–
Males	354	.	.	677	40	33	32	36	19	30	12	15	19	49	34	35	–	Croup, . .	293	54	4	–	–	–	1	–	–	–	1	1
Fem.	.	323	.	.	49	44	28	25	24	9	11	14	14	26	41	38	–	" . .	258	54	6	–	1	1	–	1	1	1	–	–
Males	41	.	.	67	4	3	4	3	4	2	1	3	4	6	3	4	–	Cyanosis, . .	40	–	–	–	–	–	–	–	–	–	–	1
Fem.	.	25	.	.	4	1	2	3	2	2	3	1	1	1	4	1	–	" . .	25	–	–	–	–	–	–	–	–	–	–	–
Unk.	.	.	1	.	–	–	1	–	–	–	–	–	–	–	–	–	–	" . .	1	–	–	–	–	–	–	–	–	–	–	–
Males	75	.	.	91	8	4	6	6	7	8	7	5	7	3	3	11	–	Cystitis, . .	1	–	–	1	–	2	1	7	25	29	8	1
Fem.	.	16	.	.	–	3	1	1	2	1	3	1	1	1	–	2	–	" . .	–	–	–	–	5	1	–	3	3	3	1	–
Males	398	.	.	770	39	24	23	17	31	24	43	57	42	44	28	26	–	Debility, . .	358	3	1	–	3	6	8	14	3	–	–	2
Fem.	.	369	.	.	26	31	31	25	20	25	41	42	34	43	25	26	–	" . .	308	2	1	2	9	5	15	20	4	–	–	3
Unk.	.	.	3	.	–	–	1	1	–	–	–	–	–	1	–	–	–	" . .	3	–	–	–	–	–	–	–	–	–	–	–

Males	23	.	.	26	1	2	–	1	1	1	2	4	4	3	1	3	–	Delirium Trem., .	–	–	–	1	7	8	4	3	–	–	–	–
Fem.	.	3	.	.	–	–	1	–	–	–	–	–	1	1	–	–	–	" " .	–	–	–	–	1	2	–	–	–	–	–	–
Males	55	.	.	90	8	3	1	5	5	3	5	6	4	5	5	5	–	Diabetes, . .	–	2	3	5	8	6	3	10	8	8	2	–
Fem.	.	35	.	.	2	4	2	2	4	3	3	4	5	1	2	3	–	" . .	–	2	4	1	1	9	7	6	8	1	1	–
Males	224	.	.	458	9	2	9	3	5	4	28	61	51	35	9	8	–	Diarrhœa, . .	168	1	–	2	2	3	6	2	9	19	12	–
Fem.	.	234	.	.	1	5	3	9	6	7	30	62	48	35	19	9	–	" . .	165	3	–	3	3	6	4	5	9	23	12	1
Males	871	.	.	1706	103	78	79	76	62	58	53	51	85	80	69	77	–	Diphtheria, .	497	249	69	24	14	9	2	4	1	1	–	1
Fem.	.	835	.	.	102	81	85	72	69	64	52	40	57	69	70	74	–	" .	458	237	77	18	17	8	7	4	3	–	1	5
Males	132	.	.	292	11	6	11	15	10	14	12	12	8	13	13	7	–	Dropsy, . .	13	1	3	2	3	8	15	11	24	31	19	2
Fem.	.	160	.	.	9	15	17	14	9	13	14	11	13	15	18	12	–	" . .	11	2	7	4	7	12	13	28	36	27	13	–
Males	195	.	.	229	3	7	7	10	17	16	46	30	22	9	9	19	–	Drowned, . .	16	30	22	16	40	20	24	12	10	2	1	2
Fem.	.	34	.	.	2	1	1	2	3	4	7	6	6	1	–	1	–	" . .	9	5	2	3	3	4	4	2	1	1	–	–
Males	176	.	.	360	4	3	5	1	–	9	26	68	36	18	4	2	–	Dysentery, . .	90	11	3	1	3	5	5	7	18	19	13	1
Fem.	.	184	.	.	5	1	3	3	7	6	19	57	45	32	4	2	–	" . .	69	9	3	2	6	8	9	11	15	29	23	–
Males	19	.	.	36	–	–	3	1	2	3	1	7	–	–	2	–	–	Dyspepsia, . .	9	–	–	–	2	–	1	–	3	2	2	–
Fem.	.	17	.	.	2	–	1	2	–	–	–	5	1	2	–	4	–	" . .	6	1	–	–	1	–	2	–	2	4	1	–
Males	10	.	.	40	2	2	1	1	–	–	–	1	–	1	1	1	–	Embolism, . .	–	–	1	1	–	–	1	4	2	1	–	–
Fem.	.	30	.	.	4	2	2	7	2	2	1	2	–	3	2	3	–	" . .	1	–	1	1	5	5	9	3	3	1	1	–
Males	220	.	.	456	17	13	12	10	16	11	19	42	23	32	9	11	–	Enteritis, . .	127	7	8	6	21	8	7	11	9	12	4	–
Fem.	.	236	.	.	17	6	13	18	12	18	31	41	27	31	12	10	–	" . .	118	9	5	9	11	13	12	14	21	18	5	1
Males	83	.	.	142	9	7	14	4	9	4	9	5	8	4	4	6	–	Epilepsy, . .	11	2	6	2	20	9	14	5	10	2	1	1
Fem.	.	59	.	.	3	4	8	4	8	2	5	2	4	6	5	8	–	" . .	1	4	1	3	11	12	5	8	9	3	1	1

Table VIII.—Continued.

SEX.	DEATHS.				MONTHS.													CAUSES OF DEATH.	AGES.											
	Sex.																													
	Males.	Fem.	Unk.	Totals.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.		Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Unknown.
Males	1	.	.	2	–	–	–	–	–	–	–	1	–	–	–	–	–	Epistaxis, . .	1	–	–	–	–	–	–	–	–	–	–	–
Fem.	.	1	.	.	–	–	–	–	–	–	–	–	–	–	1	–	–	" . .	–	1	–	–	–	–	–	–	–	–	–	–
Males	2	.	.	4	1	–	–	–	–	–	–	1	–	–	–	–	–	Epithelioma, .	–	–	–	–	–	–	–	–	–	1	1	–
Fem.	.	2	.	.	–	1	–	–	–	–	1	–	–	–	–	–	–	" .	–	–	–	–	–	–	–	1	–	–	1	–
Males	138	.	.	253	17	12	12	27	15	7	11	5	8	5	8	11	–	Erysipelas, . .	37	2	4	1	9	7	18	12	17	18	12	1
Fem.	.	115	.	.	15	20	14	8	10	10	7	5	3	3	10	10	–	" . .	32	2	2	2	8	9	9	13	14	16	8	–
Males	9	.	.	14	1	1	–	1	–	1	–	–	–	3	2	–	–	Exposure, . .	3	–	–	–	2	2	1	–	–	1	–	–
Fem.	.	5	.	.	–	2	1	–	–	–	1	–	–	–	–	1	–	" . .	3	–	–	–	–	1	1	–	–	–	–	–
Males	8	.	.	11	2	–	1	–	1	2	–	–	1	–	1	–	–	Fever, Intermit.,	–	–	–	–	1	1	1	4	–	1	–	–
Fem.	.	3	.	.	1	–	–	–	–	–	1	–	–	–	–	1	–	" "	–	1	–	–	1	–	–	–	1	–	–	–
Males	13	.	.	18	1	–	–	3	2	1	1	2	–	2	–	1	–	Fever, Remittent,	3	1	1	–	1	3	3	1	–	–	–	–
Fem.	.	5	.	.	1	–	1	1	–	–	–	–	1	–	–	1	–	" "	3	2	–	–	–	–	–	–	–	–	–	–
Males	544	.	.	1072	35	29	31	42	28	17	30	36	70	81	74	71	–	Fever, Typhoid, .	33	29	36	63	194	71	38	24	22	25	5	4
Fem.	.	528	.	.	28	28	40	35	26	18	20	42	73	93	79	46	–	" " .	28	29	55	102	148	55	38	17	25	25	5	1
Males	1	.	.	2	–	–	–	1	–	–	–	–	–	–	–	–	–	Fistula, . .	–	1	–	–	–	–	–	–	–	–	–	–
Fem.	.	1	.	.	–	–	–	1	–	–	–	–	–	–	–	–	–	" . .	–	–	–	–	–	–	1	–	–	–	–	–
Males	11	.	.	26	–	1	2	1	3	1	1	1	–	–	1	–	–	Fits, . . .	–	2	–	1	1	1	–	–	2	2	2	–
Fem.	.	15	.	.	1	1	1	2	1	2	3	–	1	–	1	2	–	" . . .	–	2	–	–	–	2	1	1	5	2	2	–

Males	66	.	.	108	6	5	2	4	8	5	4	10	6	6	5	5	-	Fracture, . .	2	1	8	2	10	8	11	12	7	5	4	1
Fem.	.	42	.	.	7	3	4	3	2	5	3	3	3	2	2	5	-	" . .	2	2	1	-	1	1	-	3	4	6	21	1
Males	2	.	.	2	1	1	-	-	-	-	-	-	-	-	-	-	-	Frozen, . .	-	-	-	-	-	1	-	-	-	1	-	-
Males	109	.	.	246	9	6	8	13	8	10	9	13	8	13	6	6	-	Gastritis, . .	33	3	1	1	3	11	5	18	16	11	7	-
Fem.	.	137	.	.	9	5	11	14	12	11	11	12	12	14	10	16	-	" . .	19	4	2	3	19	14	13	17	11	21	13	1
Fem.	.	1	.	1	-	-	-	-	-	-	-	-	1	-	-	-	-	Goitre, . .	-	-	-	-	-	-	-	1	-	-	-	-
Males	1	.	.	1	1	-	-	-	-	-	-	-	-	-	-	-	-	Gout, . . .	-	-	-	-	-	-	-	1	-	-	-	-
Males	17	.	.	21	1	1	3	2	-	-	1	1	3	-	1	4	-	Gravel, . .	-	-	-	-	-	-	1	4	7	3	2	-
Fem.	.	4	.	.	-	-	-	1	-	-	-	-	-	1	2	-	-	" . .	-	-	-	-	-	-	2	-	2	-	-	-
Males	1011	.	.	1937	95	100	96	92	71	73	81	76	68	102	81	76	-	Heart Disease, .	59	24	21	25	56	62	75	146	216	248	75	4
Fem.	.	926	.	.	83	80	86	109	72	79	59	64	71	71	66	86	-	" " .	33	23	20	27	50	87	81	120	179	216	88	2
Males	23	.	.	24	-	-	-	-	3	-	3	12	4	1	-	-	-	Heat, . . .	2	-	-	2	3	4	1	5	3	2	-	1
Fem.	.	1	.	.	-	-	-	-	1	-	-	-	-	-	-	-	-	" . . .	1	-	-	-	-	-	-	-	-	-	-	-
Males	44	.	.	106	7	6	3	4	1	2	3	4	2	3	3	6	-	Hemorrhage, .	20	2	1	1	5	3	4	4	3	-	1	-
Fem.	.	62	.	.	7	9	4	9	4	5	3	5	6	5	4	1	-	" .	21	1	3	2	6	10	7	5	3	4	-	-
Males	43	.	.	97	3	6	3	4	1	5	6	3	4	2	3	3	-	Hepatitis, . .	4	1	2	2	3	2	9	6	6	8	-	-
Fem.	.	54	.	.	4	4	9	3	8	5	7	2	3	1	5	3	-	" . .	1	1	1	-	3	6	9	9	9	14	1	-
Males	34	.	.	58	7	1	2	1	2	2	1	3	5	2	3	5	-	Hernia, . .	5	1	-	-	3	1	1	2	8	12	1	-
Fem.	.	24	.	.	2	2	4	3	1	1	1	1	2	2	2	3	-	" . .	3	-	-	-	-	1	2	8	2	4	3	1
Males	10	.	.	15	2	-	2	1	1	-	-	2	2	-	-	-	-	Hip Disease, .	2	3	-	2	1	1	1	-	-	-	-	-
Fem.	.	5	.	.	-	-	1	-	-	1	2	-	-	-	-	1	-	" " .	-	2	1	-	1	1	-	-	-	-	-	-

Table VIII.—Continued.

SEX.	DEATHS.				MONTHS.													CAUSES OF DEATH.	AGES.											
	Sex.																													
	Males.	Fem.	Unk.	Totals.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.		Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Unknown.
Males	5	.	.	12	1	–	1	–	–	–	1	–	2	–	–	–	–	Homicide,	–	–	–	1	–	2	1	–	1	–	–	–
Fem.	.	7	.	.	–	1	–	1	–	1	–	1	1	–	1	1	–	“	–	–	–	–	2	1	3	–	–	1	–	–
Males	261	.	.	490	21	19	31	22	25	19	15	33	25	22	15	14	–	Hydrocephalus,	233	16	4	–	1	1	2	1	–	1	–	2
Fem.	.	228	.	.	17	20	19	15	25	20	28	21	21	14	16	12	–	“	192	21	5	3	2	3	1	1	–	–	–	–
Unk.	.	.	1	.	–	1	–	–	–	–	–	–	–	–	–	–	–	“	1	–	–	–	–	–	–	–	–	–	–	–
Males	2	.	.	3	–	–	–	–	–	–	–	1	–	1	–	–	–	Hydrophobia,	–	–	1	–	–	–	–	–	1	–	–	–
Fem.	.	1	.	.	–	–	–	–	–	–	–	–	–	1	–	–	–	“	–	–	–	–	–	–	–	–	–	1	–	–
Males	9	.	.	13	–	1	1	2	1	–	1	1	–	–	–	2	–	Hydrothorax,	1	1	–	–	1	–	1	1	1	1	1	1
Fem.	.	4	.	.	–	1	1	–	1	1	–	–	–	–	–	–	–	“	–	–	–	1	–	–	1	–	–	2	–	–
Males	38	.	.	66	4	1	1	–	7	2	4	7	6	–	3	3	–	Ileus,	16	–	–	–	–	2	4	2	9	3	2	–
Fem.	.	28	.	.	3	2	–	2	2	3	2	3	7	1	2	1	–	“	7	–	–	1	2	1	4	3	7	2	1	–
Males	1	.	.	2	–	–	–	–	–	–	–	–	–	1	–	–	–	Infanticide,	1	–	–	–	–	–	–	–	–	–	–	–
Fem.	.	1	.	.	–	–	–	–	–	–	1	–	–	–	–	–	–	“	1	–	–	–	–	–	–	–	–	–	–	–
Males	140	.	.	253	10	12	17	13	8	9	9	20	11	12	11	8	–	Infantile,	140	–	–	–	–	–	–	–	–	–	–	–
Fem.	.	111	.	.	8	8	8	11	10	8	12	12	12	9	6	7	–	“	111	–	–	–	–	–	–	–	–	–	–	–
Unk.	.	.	2	.	–	–	–	–	–	1	–	–	–	1	–	–	–	“	2	–	–	–	–	–	–	–	–	–	–	–
Males	12	.	.	20	2	1	2	1	1	–	–	1	–	2	1	1	–	Inflammation,	6	–	1	–	1	1	–	1	1	1	–	–
Fem.	.	8	.	.	2	1	–	–	–	1	–	–	1	1	2	–	–	“	5	–	–	1	–	1	–	1	–	–	–	–

Males	8	.	.	15	–	2	2	1	–	–	–	–	–	–	1	2	–	Influenza,	2	–	–	–	1	–	–	–	–	–	5	–
Fem.	.	7	.	.	–	2	1	1	2	–	–	1	–	–	–	–	–	“	4	–	–	–	–	–	–	–	–	3	–	–
Males	47	.	.	129	1	6	4	3	3	2	5	4	6	2	3	8	–	Insanity,	–	–	–	2	4	6	7	4	7	11	6	–
Fem.	.	82	.	.	4	9	9	6	4	6	5	10	3	9	7	10	–	“	–	–	–	2	5	13	15	12	16	10	8	1
Males	62	.	.	97	10	4	5	6	1	6	2	4	9	4	7	4	–	Intemperance,	–	–	–	–	6	13	19	12	6	4	1	1
Fem.	.	35	.	.	2	3	3	3	1	4	4	2	3	7	1	2	–	“	–	–	–	–	6	12	6	7	4	–	–	–
Males	12	.	.	23	–	1	–	1	1	1	2	1	2	–	2	1	–	Intussusception,	4	–	1	–	4	1	–	–	1	1	–	–
Fem.	.	11	.	.	–	–	1	–	2	2	–	4	–	–	1	1	–	“	4	–	–	1	–	–	1	2	2	–	1	–
Males	7	.	.	8	3	1	–	–	–	–	1	–	1	–	1	–	–	Ischuria,	1	–	–	–	–	1	2	–	1	1	1	–
Fem.	.	1	.	.	–	–	–	–	–	–	–	–	–	–	–	1	–	“	–	–	–	–	–	–	–	–	–	1	–	–
Males	32	.	.	55	3	2	3	4	1	4	4	5	1	3	1	1	–	Jaundice,	21	1	–	–	–	–	1	2	2	5	–	–
Fem.	.	23	.	.	1	4	–	4	3	1	2	–	5	–	–	3	–	“	9	2	–	–	–	2	2	4	3	1	–	–
Males	4	.	.	8	–	–	–	–	–	2	2	–	–	–	–	–	–	Joint Disease,	1	–	–	–	–	1	–	–	2	–	–	–
Fem.	.	4	.	.	3	–	–	–	–	–	–	–	–	1	–	–	–	“ “	–	–	–	1	–	–	1	–	1	1	–	–
Males	87	.	.	133	3	2	7	6	10	9	8	5	13	4	12	8	–	Kidney Disease,	1	2	1	2	4	5	5	12	23	24	8	–
Fem.	.	46	.	.	4	2	6	5	3	1	7	4	3	6	2	3	–	“ “	–	–	1	1	5	7	10	4	6	7	5	–
Males	36	.	.	61	6	6	1	4	2	3	1	3	2	4	3	1	–	Laryngitis,	24	8	1	–	–	–	2	–	–	–	1	–
Fem.	.	25	.	.	4	3	4	2	3	–	3	–	–	2	1	3	–	“	19	2	–	–	1	1	1	–	–	1	–	–
Males	2	.	.	2	–	–	–	–	2	–	–	–	–	–	–	–	–	Lightning,	–	1	–	–	–	–	–	1	–	–	–	–
Males	75	.	.	151	6	7	7	7	1	3	6	6	9	5	10	8	–	Liver Disease,	5	1	2	4	4	5	12	12	13	16	–	1
Fem.	.	76	.	.	5	5	8	6	8	7	4	8	7	1	7	10	–	“ “	3	–	2	2	4	9	8	13	18	14	3	–
Males	7	.	.	7	1	–	–	–	–	1	1	1	1	–	2	–	–	Locomot. Ataxia,	–	–	–	–	–	1	1	1	2	1	–	1

TABLE VIII.—Continued.

SEX.	DEATHS.				MONTHS.													CAUSES OF DEATH.	AGES.											
	Sex.			Totals.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.		Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Unknown.
	Males.	Fem.	Unk.																											
Males	47	.	.	47	3	2	4	16	–	2	14	3	3	–	–	–	–	Lost at Sea, .	–	–	–	1	9	4	3	–	–	–	–	30
Males	30	.	.	66	1	4	–	7	4	–	1	–	–	4	5	4	–	Lung Disease, .	5	2	–	–	2	1	5	6	4	3	2	–
Fem.	.	36	.	.	3	1	3	5	5	3	1	1	2	3	3	6	–	“ “ .	13	2	2	–	6	3	1	2	3	4	–	–
Males	31	.	.	59	2	–	3	1	2	3	1	6	4	3	4	2	–	Malformation, .	31	–	–	–	–	–	–	–	–	–	–	–
Fem.	.	28	.	.	1	3	2	5	1	1	3	3	5	1	–	3	–	“ .	28	–	–	–	–	–	–	–	–	–	–	–
Males	2	.	.	4	–	–	–	1	–	1	–	–	–	–	–	–	–	Malignant Pust., .	–	–	–	–	–	1	1	–	–	–	–	–
Fem.	.	2	.	.	–	–	–	–	1	1	–	–	–	–	–	–	–	“ “ .	–	–	–	–	–	–	1	–	1	–	–	–
Males	114	.	.	230	17	21	24	17	19	4	7	1	1	1	1	1	–	Measles, . .	97	9	2	–	2	1	–	–	–	3	–	–
Fem.	.	116	.	.	31	20	21	17	11	7	4	1	–	3	1	–	–	“ . .	85	16	1	1	3	4	1	1	1	2	–	1
Fem.	.	116	.	116	11	17	10	12	13	10	8	5	8	7	7	8	–	Metria (Puerp. F.)	–	–	–	7	53	47	9	–	–	–	–	–
Fem.	.	13	.	13	1	1	–	2	1	1	2	–	1	2	1	1	–	Metritis, . .	–	–	–	1	6	3	2	1	–	–	–	–
Fem.	.	12	.	12	1	–	–	1	1	4	–	3	–	–	–	2	–	Miscarriage, .	–	–	–	1	3	6	2	–	–	–	–	–
Males	59	.	.	90	7	7	5	5	7	5	4	4	2	3	6	4	–	Mortification, :	2	–	–	–	1	–	1	4	11	25	15	–
Fem.	.	31	.	.	4	1	7	3	5	1	2	–	4	–	2	2	–	“ .	1	–	–	1	–	–	1	3	3	11	11	–
Males	5	.	.	6	–	–	1	1	–	–	1	1	–	–	–	1	–	Murder, . .	–	–	–	–	2	–	–	1	–	1	–	–
Fem.	.	1	.	.	–	–	–	–	–	–	1	–	–	–	–	–	–	“ . .	–	–	–	–	–	1	–	–	–	–	–	–

Males	8	.	.	15	3	1	1	–	–	1	–	–	1	1	–	–	–	Necrosis, . .	–	1	–	2	1	–	2	–	–	1	1	–
Fem.	.	7	.	.	1	–	–	1	1	1	–	1	2	–	–	–	–	" . .	–	1	–	–	–	1	1	1	2	1	–	–
Males	319	.	.	563	24	29	25	33	28	25	25	28	23	32	25	22	–	Nephria (Bright's D.)	5	3	5	5	33	42	42	52	74	45	11	2
Fem.	.	244	.	.	19	22	21	20	20	24	15	21	21	22	22	17	–	" "	6	3	3	4	36	29	34	45	46	30	8	–
Males	80	.	.	129	6	8	7	10	8	3	7	5	7	7	3	9	–	Nephritis, . .	9	1	–	2	5	5	12	12	20	11	3	–
Fem.	.	49	.	.	5	2	3	3	6	6	4	4	1	8	1	6	–	" . .	1	4	1	–	6	6	11	9	7	3	1	–
Males	11	.	.	22	–	3	1	–	1	–	1	–	2	1	1	1	–	Neuralgia, . .	–	–	–	–	–	1	2	1	3	4	–	–
Fem.	.	11	.	.	3	1	–	–	1	1	–	–	–	4	–	1	–	" . .	–	–	–	–	3	2	–	1	1	2	2	–
Males	14	.	:	31	–	2	1	1	2	1	2	1	1	2	1	–	–	Noma (Canker),	14	–	–	–	–	–	–	–	–	–	–	–
Fem.	.	17	.	.	2	–	1	1	2	3	2	3	1	–	2	–	–	" "	16	–	1	–	–	–	–	–	–	–	–	–
Males	758	.	.	1816	81	44	80	82	68	52	53	37	54	62	61	83	–	Old Age, . .	–	–	–	–	–	–	–	–	70	219	464	5
Fem.	.	1058	.	.	89	92	95	116	76	58	80	90	84	97	82	99	–	" . .	–	–	–	–	–	–	–	1	79	269	706	3
Fem.	34	.	.	34	3	2	3	3	3	2	4	–	1	4	4	5	–	Ovarian Dropsy, .	–	–	–	–	5	3	8	5	6	5	2	–
Males	1	.	.	2	–	1	–	–	–	–	–	–	–	–	–	–	–	Pancreas, Dis. of,	–	–	–	–	–	–	–	–	1	–	-	–
Fem.	.	1	.	.	–	–	1	–	–	–	–	–	–	–	–	–	–	" "	–	–	–	–	–	–	–	1	–	–	–	–
Males	470	.	.	998	50	44	41	35	39	35	37	34	53	35	34	33	–	Paralysis, . .	6	3	1	1	4	15	40	57	110	154	78	1
Fem.	.	528	.	.	37	39	49	48	54	45	36	36	50	48	39	47	–	" . .	9	2	1	1	12	19	33	65	111	163	110	2
Fem.	.	5	.	5	–	–	1	1	–	1	1	1	–	–	–	–	–	Paramenia, . .	–	–	–	1	1	–	2	1	–	–	–	–
Males	3	.	.	3	–	–	–	–	–	1	–	1	1	–	–	–	–	Parotitis, . .	1	–	–	1	–	–	–	–	1	–	–	–
Males	51	.	.	121	6	6	3	5	6	4	5	2	–	6	6	2	–	Pericarditis, .	3	6	1	4	5	5	5	4	8	6	3	1
Fem.	.	70	.	.	7	4	4	7	13	4	7	4	4	5	4	7	–	" . .	4	8	6	3	10	3	7	8	8	10	3	–

TABLE VIII.—Continued.

SEX.	DEATHS.				MONTHS.													CAUSES OF DEATH.	AGES.											
	Sex. Males.	Sex. Fem.	Sex. Unk.	Totals.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Unknown.		Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80.	Unknown.
Males	119	.	.	284	18	8	9	6	6	10	9	12	8	13	10	10	–	Peritonitis, . .	11	7	9	13	17	9	16	16	9	7	5	–
Fem.	.	165	.	.	12	9	16	13	20	11	10	13	17	18	13	13	–	" . .	11	8	6	13	39	30	20	13	11	11	3	–
Fem.	.	7	.	7	1	–	–	1	–	–	1	–	1	2	1	–	–	Phlebitis, . .	–	1	–	–	1	2	1	1	1	–	–	–
Males	49	.	.	88	5	8	3	3	3	3	3	2	–	10	4	5	–	Pleurisy, . .	7	2	1	–	5	5	7	10	8	2	2	–
Fem.	.	39	.	.	4	4	5	3	5	8	2	1	–	2	–	5	–	" . .	3	3	–	1	5	4	4	2	8	5	4	–
Males	1481	.	.	2967	182	203	166	197	144	76	46	42	55	69	132	169	–	Pneumonia, .	501	38	10	28	98	116	145	156	163	144	79	3
Fem.	.	1486	.	.	178	177	197	195	134	83	59	45	51	81	114	172	–	" . .	411	48	21	37	88	109	115	131	173	223	128	2
Males	30	.	.	48	1	3	3	2	2	2	2	5	2	1	4	3	–	Poisoned, . .	9	1	–	–	2	8	3	4	2	1	–	–
Fem.	.	18	.	.	1	1	2	–	3	–	–	5	2	2	–	2	–	" . .	6	–	1	–	6	2	–	–	3	–	–	–
Males	206	.	.	359	19	6	14	19	21	13	18	12	21	19	17	27	–	Premature Births,	206	–	–	–	–	–	–	–	–	–	–	–
Fem.	.	153	.	.	15	16	10	16	16	10	14	14	14	6	7	15	–	" "	153	–	–	–	–	–	–	–	–	–	–	–
Males	18	.	.	18	1	2	1	1	2	2	1	3	–	4	–	1	–	Prostate, Dis. of, .	–	–	–	–	–	–	–	1	3	9	5	–
Fem.	.	49	.	49	3	4	4	4	5	7	9	5	2	1	2	3	–	Puerperal Convul.	–	–	–	4	23	18	4	–	–	–	–	–
Males	12	.	.	24	1	3	–	2	–	–	1	–	–	3	2	–	–	Purpura (Scurvy),	5	1	–	1	3	1	–	1	–	–	–	–
Fem.	.	12	.	.	2	1	–	1	1	1	1	–	2	1	1	1	–	" "	5	1	–	3	1	–	–	1	1	–	–	–
Males	7	.	.	15	1	–	1	–	1	–	–	–	–	–	3	1	–	Quinsy, . .	4	1	1	–	–	–	–	1	–	–	–	–
Fem.	.	8	.	.	–	–	1	2	–	–	–	–	–	1	1	3	–	" . .	6	1	1	–	–	–	–	–	–	–	–	–

Males	155	.	.	171	9	7	15	8	20	10	22	18	14	11	8	13	–	R. R. Accident, .	2	4	6	10	51	30	14	20	7	7	2	2
Fem.	.	16	.	.	1	–	1	3	2	2	1	–	1	1	1	3	–	" " .	1	1	–	1	2	1	4	3	2	1	–	–
Males	114	.	.	226	11	8	13	13	17	10	10	6	8	8	5	5	–	Rheumatism, .	4	4	6	5	15	12	11	15	19	18	5	–
Fem.	.	112	.	.	7	12	17	8	9	11	7	13	6	9	5	8	–	"	3	11	7	4	14	7	15	15	19	11	6	–
Males	196	.	.	397	31	19	16	20	27	24	16	12	3	12	8	8	–	Scarlatina, . .	141	45	7	1	1	–	–	–	–	–	–	1
Fem.	.	201	.	.	23	23	29	15	25	25	18	11	6	4	12	10	–	" . .	131	55	8	2	3	2	–	–	–	–	–	–
Males	53	.	.	103	4	7	4	1	5	7	1	8	6	4	4	2	–	Scrofula, . .	33	3	–	6	3	1	1	2	–	3	1	–
Fem.	.	50	.	.	1	10	7	2	7	1	5	3	3	6	4	1	–	" . .	19	4	–	2	6	2	4	2	8	3	–	–
Males	33	.	.	80	4	1	4	6	5	3	1	1	2	1	3	2	–	Septicaemia, .	6	–	1	1	2	4	5	5	3	4	2	–
Fem.	.	47	.	.	4	5	3	9	5	4	4	4	1	2	4	2	–	" .	4	2	1	2	16	15	1	3	2	1	–	–
Males	8	.	.	16	–	1	3	–	–	–	1	1	–	1	1	–	–	Skin Diseases, .	4	–	–	–	–	–	–	1	–	3	–	–
Fem.	.	8	.	.	–	1	1	–	–	–	–	–	1	1	1	3	–	" " .	7	–	–	–	–	–	1	–	–	–	–	–
Males	23	.	.	47	–	–	1	2	6	2	1	–	–	3	2	6	–	Small-pox, . .	10	4	1	–	3	1	2	1	–	–	–	1
Fem.	.	24	.	.	–	–	1	–	5	–	3	–	1	–	6	8	–	" . .	5	2	1	6	8	–	1	–	–	–	1	–
Males	10	.	.	25	1	1	3	–	1	–	1	–	2	1	–	–	–	Spina Bifida, .	10	–	–	–	–	–	–	–	–	–	–	–
Fem.	.	15	.	.	1	1	1	1	2	1	1	1	1	1	2	2	–	" " .	15	–	–	–	–	–	–	–	–	–	–	–
Males	26	.	.	61	1	2	1	2	3	3	3	1	1	1	4	4	–	Spine Disease, .	4	6	2	3	1	1	1	4	2	2	–	–
Fem.	.	35	.	.	2	5	4	2	3	5	2	1	3	3	5	–	–	" " .	5	1	2	3	2	3	4	4	8	3	–	–
Males	5	.	.	8	–	–	–	–	1	1	2	1	–	–	–	–	–	Spleen Disease, .	–	–	–	–	–	2	–	3	–	–	–	–
Fem.	.	3	.	.	1	–	1	–	–	–	–	–	–	1	–	–	–	" " .	–	–	–	–	1	–	1	1	–	–	–	–
Males	3	.	.	6	–	–	–	1	–	2	–	–	–	–	–	–	–	Starvation, . .	–	–	–	–	–	–	–	2	1	–	–	–
Fem.	.	3	.	.	–	–	–	–	2	–	–	–	–	1	–	–	–	" . .	–	1	–	–	–	–	–	1	–	1	–	–

Males	360	.	.	692	24	22	24	23	22	19	22	57	53	46	25	23	-	Tabes Mesentor.,	316	5	2	1	7	1	4	3	9	9	2	1
Fem.	.	332	.	.	20	14	31	19	23	24	23	57	37	42	24	18	-	" "	267	5	1	4	9	6	5	9	10	6	8	2
Males	104	.	.	193	5	3	9	11	8	12	7	16	13	9	6	5	-	Teething, . .	104	-	-	-	-	-	-	-	-	-	-	-
Fem.	.	89	.	.	4	-	10	3	7	7	8	16	15	10	5	4	-	" . .	89	-	-	-	-	-	-	-	-	-	-	-
Males	18	.	.	18	-	-	-	1	-	2	7	2	1	3	2	-	-	Tetanus, . .	-	2	7	2	2	3	-	2	-	-	-	-
Males	5	.	.	9	-	1	-	-	-	-	-	2	2	-	-	-	-	Thrush, . .	5	-	-	-	-	-	-	-	-	-	-	-
Fem.	.	4	.	.	-	1	1	-	1	-	-	1	-	-	-	-	-	" . .	3	-	-	-	-	-	-	-	-	-	1	-
Males	21	.	.	61	1	2	3	3	.	2	5	-	-	1	4	-	-	Tumor, . .	2	-	-	-	1	-	1	7	4	4	2	-
Fem.	.	40	.	.	3	1	2	3	6	3	5	1	4	5	2	5	-	" . .	1	-	-	-	1	5	9	12	9	2	1	-
Males	4	.	.	18	-	-	2	-	-	-	1	-	-	1	-	-	-	Ulcers, . .	-	-	-	-	-	-	-	1	1	1	1	-
Fem.	.	14	.	.	3	3	1	3	-	-	-	1	1	-	1	1	-	" . .	4	-	-	-	1	1	-	2	3	2	1	-
Males	9	.	.	21	1	-	1	-	-	-	1	-	1	1	2	2	-	Ulcer Intest., .	2	-	-	-	-	-	2	3	1	1	-	-
Fem.	.	12	.	.	-	2	-	1	1	2	1	2	-	1	2	-	-	" " .	1	-	2	-	5	1	1	1	-	1	-	-
Males	254	.	.	469	16	23	12	23	24	12	23	22	20	34	16	29	-	Unknown, . .	168	9	2	3	10	13	17	12	9	-	-	11
Fem.	.	209	.	.	10	19	16	27	21	10	22	17	19	16	18	14	-	" . .	122	4	4	4	19	15	16	16	3	-	-	6
Unk.	.	.	6	.	-	2	-	1	-	-	2	-	-	-	-	1	-	" . .	6	-	-	-	-	-	-	-	-	-	-	-
Fem.	.	21	.	21	1	1	1	-	4	5	-	-	1	3	3	2	-	Uterus Disease, .	-	-	1	1	1	4	8	4	1	1	-	-
Males	93	.	.	217	7	4	7	6	6	11	6	11	14	8	4	9	-	Whooping Cough,	91	2	-	-	-	-	-	-	-	-	-	-
Fem.	.	124	.	.	11	10	13	7	7	8	6	11	17	12	10	12	-	" "	119	5	-	-	-	-	-	-	-	-	-	-
Males	1	.	.	2	-	-	-	-	1	-	-	-	-	-	-	-	-	Worms, . .	-	-	-	-	-	-	-	-	1	-	-	-
Fem.	.	1	.	.	-	1	-	-	-	-	-	-	-	-	-	-	-	" . .	-	1	-	-	-	-	-	-	-	-	-	-

Table IX.

CAUSES OF DEATH,

NOSOLOGICALLY ARRANGED,

(BY COUNTIES.)

Table IX. — CAUSES OF DEATH. — Nosological Arrangement.*

Exhibiting the Number of Deaths in each County, from Specified Causes (statistically classified), during the year

1881.

[Still-births included.†]

CAUSES OF DEATH.	State.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
All Causes,	37,924	538	1,331	3,165	217	4,964	619	2,141	980	6,379	1,707	1,412	10,143	4,328
Specified Causes,	37,259	520	1,257	3,108	214	4,894	601	2,078	936	6,277	1,691	1,384	10,072	4,227
(CLASSES.)														
I. — Zymotic Diseases,	8,240	79	296	710	25	952	94	498	230	1,368	321	323	2,401	943
II. — Constitutional Diseases,	8,693	138	245	623	59	1,296	157	474	176	1,564	402	287	2,406	866
III. — Local Diseases,	13,660	206	477	1,213	72	1,745	214	771	369	2,325	670	511	3,506	1,581
IV. — Developmental Diseases,	5,240	81	172	477	47	703	103	242	134	815	236	219	1,361	650
V. — Violent Deaths,	1,426	16	67	85	11	198	33	93	27	205	62	44	398	187
(ORDERS.)														
I. — 1. *Miasmatic Diseases,*	7,921	74	291	689	22	921	93	485	222	1,312	312	313	2,266	921
2. *Enthetic Diseases,*	155	4	2	10	1	18	1	8	3	31	3	5	52	17
3. *Dietic Diseases,*	153	1	3	11	2	12	-	5	4	20	6	5	80	4
4. *Parasitic Diseases,*	11	-	-	-	-	1	-	-	1	5	-	-	3	1
II. — 1. *Diathetic Diseases,*	1,502	32	75	99	12	250	41	63	34	259	76	68	338	155
2. *Tubercular Diseases,*	7,191	106	170	524	47	1,046	116	411	142	1,305	326	219	2,068	711

III. — 1. *Diseases of Nervous System,* .	4,211	72	158	468	26	593	65	225	101	742	233	151	875	537
2. *Dis. of Organs of Circulation,*	2,169	44	88	174	16	329	35	105	60	386	101	95	490	246
3. *Dis. of Respiratory Organs,* .	4,172	56	141	297	15	440	63	252	124	723	176	132	1,279	474
4. *Diseases of Digestive Organs,* .	1,727	18	62	166	3	211	31	118	43	277	75	81	440	202
5. *Diseases of Urinary Organs,* .	1,053	12	26	79	9	140	18	54	29	162	70	37	316	101
6. *Dis. of Generative Organs,* .	68	–	2	8	–	10	–	7	5	5	3	3	21	4
7. *Dis. of Organs of Locomotion,*	110	3	1	7	3	8	–	7	2	17	5	5	42	10
8. *Dis. of Integumentary System,*	120	1	4	14	–	14	2	3	5	13	7	7	43	7
IV. — 1. *Dev. Diseases of Children,* .	2,422	29	45	195	11	308	27	71	44	386	111	72	865	258
2. *Dev. Diseases of Adults,* .	232	2	10	18	1	32	3	18	7	28	7	10	73	23
3. *Dev. Diseases of Old People,* .	1,816	42	88	159	35	251	59	109	64	294	99	121	252	243
4. *Diseases of Nutrition,* . .	770	8	29	105	–	112	14	44	19	107	19	16	171	126
V. — 1. *Accident or Negligence,* . .	1,241	15	60	71	10	171	30	75	21	181	52	40	350	165
2. *Battle,*	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3. *Homicide,*	20	–	1	1	–	1	–	6	1	1	2	–	7	–
4. *Suicide,*	165	1	6	13	1	26	3	12	5	23	8	4	41	22
5. *Execution,*	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sudden Deaths (cause unascertained),	9	2	3	1	–	–	–	–	–	3	–	–	–	–
Causes not specified,‡	656	16	71	56	3	70	18	63	44	99	16	28	71	101

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* See Statistical Nosology in Appendix.

† Still-births are included in no Tables of Deaths except Tables IX and X.

‡ Including 106 deaths from "Hemorrhage," 61 from "Tumor," 20 from "Inflammation," and 469 deaths of which the cause was not stated in the Returns.

TABLE IX. — Continued.

CAUSES OF DEATH.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
I. — 1. *Miasmatic.*														
Totals,	7,921	74	291	689	22	921	93	485	222	1,312	312	313	2,266	921
1. Small-pox,	47	–	13	2	–	1	–	18	1	2	1	–	7	2
2. Measles,	230	6	20	9	–	7	2	–	–	37	9	8	107	25
3. Scarlatina,	397	11	37	46	4	11	–	24	11	48	6	8	41	150
4. Diphtheria,	1,706	13	23	73	–	207	11	33	52	300	106	119	621	148
5. Cerebro-Spinal Meningitis,	157	3	10	14	1	21	3	19	7	27	9	5	24	14
6. Quinsy,	18	–	3	–	–	–	–	4	–	3	1	–	5	2
7. Croup,	677	5	10	74	1	60	14	39	20	116	30	26	194	88
8. Whooping Cough,	217	1	11	25	–	22	1	6	4	45	3	2	77	20
9. Typhoid Fever,*	1,072	16	62	95	3	148	22	110	44	151	38	37	221	125
10. Erysipelas,	253	6	11	18	–	35	2	15	5	41	13	14	59	34
11. Metria (Puerperal Fever),	116	1	2	14	–	15	3	12	4	21	4	8	21	11
12. Carbuncle,	14	–	2	–	–	1	–	–	–	3	–	2	5	1
13. Influenza,	15	–	–	1	–	4	1	2	1	2	–	1	–	3
14. Dysentery,	360	–	11	53	8	45	4	13	18	57	15	16	97	23
15. Diarrhœa,	458	3	13	38	1	61	5	24	6	44	10	9	206	38
16. Cholera Infantum,	1,861	9	51	204	2	252	17	133	37	378	54	49	477	198
17. Cholera,	68	–	2	3	–	10	1	7	1	13	5	3	17	6
18. Ague,	11	–	–	–	–	1	1	6	–	1	–	–	2	–
19. Remittent Fever,	18	–	–	4	1	1	2	4	1	1	–	–	2	2
20. Rheumatism,	226	–	10	16	1	19	4	16	10	22	8	6	83	31

I. — 2. *Enthetic.*														
Totals,	155	4	2	10	1	18	1	8	3	31	3	5	52	17
1. Syphilis,	64	1	1	3	–	1	–	1	1	18	–	2	34	2
2. Stricture of Urethra,	4	–	–	–	–	–	–	–	–	1	–	–	3	–
3. Hydrophobia,	3	–	1	–	1	–	–	1	–	–	–	–	–	–
4. Glanders,	–	–	–	–	–	–	–	–	–	–	–	–	–	–
5. Malignant Pustule,	4	–	–	–	–	1	–	1	1	–	–	–	1	–
6. Septicæmia,	80	3	–	7	–	16	1	5	1	12	3	3	14	15
I. — 3. *Dietic.*														
Totals,	153	1	3	11	2	12	–	5	4	20	6	5	80	4
1. Privation,	6	–	–	–	–	–	–	–	–	1	–	–	4	1
2. Purpura and Scurvy,	24	–	1	3	–	3	–	1	–	4	1	1	10	–
3. Delirium Tremens, } Alcoholism,	26	–	1	3	–	–	–	2	1	1	1	1	15	1
4. Intemperance, }	97	1	1	5	2	9	–	2	3	14	4	3	51	2
I. — 4. *Parasitic.*														
Totals,	11	–	–	–	–	1	–	–	1	5	–	–	3	1
1. Thrush,	9	–	–	–	–	1	–	–	–	4	–	–	3	1
2. Worms,	2	–	–	–	–	–	–	–	1	1	–	–	–	–
II. — 1. *Diathetic.*														
Totals,	1,502	32	75	99	12	250	41	63	34	259	76	68	338	155
1. Gout,	1	–	–	–	–	–	–	–	–	–	–	–	1	–
2. Dropsy,	292	7	33	18	2	48	17	17	11	44	11	14	24	46
3. Anæmia,	139	1	4	7	–	27	4	12	4	28	11	8	24	9
4. Cancer,†	949	22	36	67	10	150	20	30	17	162	42	34	270	89
5. Noma (Canker),	31	1	–	2	–	10	–	1	–	7	3	–	3	4
6. Mortification,	90	1	2	5	–	15	–	3	2	18	9	12	16	7

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* Including "Fever," Typhus Fever, Continued Fever, and "Bilious" Fever.

† Including 150 Cancer of Stomach, 133 Cancer of Liver, 78 Cancer of Uterus, 562 Cases of "Cancer," and 4 of Epithelioma.

Table IX. — Continued.

CAUSES OF DEATH.	State.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
II. — 2. *Tubercular.*														
Totals,	7,191	106	170	524	47	1,046	116	411	142	1,305	326	219	2,068	711
1. Scrofula,	123	7	2	6	-	9	2	3	1	35	5	4	35	14
2. Tabes Mesenterica,	692	3	4	59	4	90	1	36	9	113	34	19	298	22
3. Phthisis (Consumption of Lungs),	5,886	94	162	430	41	873	111	354	119	1,059	258	182	1,571	632
4. Hydrocephalus (Tubercular Meningitis),	490	2	2	29	2	74	2	18	13	98	29	14	164	43
III. — 1. *Nervous System.*														
Totals,	4,241	72	153	468	26	593	65	225	101	742	233	151	875	537
1. Cephalitis,	1,058	10	28	119	9	128	9	82	21	165	45	24	311	107
2. Apoplexy,	718	12	28	77	5	110	10	34	23	113	43	31	152	80
3. Paralysis,	998	31	47	81	6	149	23	44	20	188	71	57	125	156
4. Insanity,	129	1	4	20	2	27	2	1	-	16	5	2	17	32
5. Chorea,	6	-	-	-	1	1	-	-	-	-	-	-	2	2
6. Epilepsy	168	1	6	20	1	26	6	7	8	23	5	5	32	28
7. Tetanus,	18	-	1	2	-	6	1	-	1	2	1	-	1	3
8. Convulsions,	665	6	21	109	-	86	4	36	15	125	39	11	125	88
9. *Brain Diseases, etc.*,	481	11	18	40	2	60	10	21	13	110	24	21	110	41
III. — 2. *Organs of Circulation.*														
Totals,	2,169	44	88	174	16	329	35	105	60	386	101	95	490	246
1. Pericarditis,	121	1	2	12	1	19	2	11	2	22	6	2	30	11
2. Aneurism,	31	-	-	1	2	5	-	4	1	1	2	1	11	3
3. *Heart Diseases, etc.*,	2,017	43	86	161	13	305	33	90	57	363	93	92	449	232

III. — 3. *Respiratory Organs.*														
Totals,	4,172	56	141	297	15	440	63	252	124	723	176	132	1,279	474
1. Epistaxis,	2	-	-	-		-	-	-	-	1	-	-	1	-
2. Laryngitis,	61	-	-	7	-	5	1	4	-	10	2	5	24	3
3. Bronchitis,	843	7	16	78	3	57	4	36	15	146	23	20	378	60
4. Pleurisy,	101	5	2	5	1	7	1	7	2	15	5	4	35	12
5. Pneumonia,	2,967	41	115	191	9	353	52	198	99	522	130	94	782	381
6. Asthma,	132	1	6	8	-	16	5	5	7	16	6	4	47	11
7. *Lung Diseases, etc.*,	66	2	2	8	2	2	-	2	1	13	10	5	12	7
III. — 4. *Digestive Organs.*														
Totals,	1,727	18	62	166	3	211	31	118	43	277	75	81	440	202
1. Gastritis,	246	2	3	19	-	30	7	13	10	43	14	13	57	35
2. Enteritis,	456	3	19	39	-	57	10	51	9	71	21	16	114	46
3. Peritonitis,	284	1	16	30	1	41	2	18	5	54	14	11	61	30
4. Ascites,	26	-	-	3	-	4	1	2	-	3	-	-	10	3
5. Ulceration of Intestines,	21	1	-	1	-	1	-	1	-	3	-	2	8	4
6. Hernia,	58	2	-	5	-	4	3	2	1	10	3	7	15	6
7. Ileus,	66	1	2	5	-	10	-	1	-	7	1	4	21	14
8. Intussusception,	23	-	-	1	-	2	-	-	-	3	1	2	12	2
9. Stricture of Intestines,	20	-	-	6	-	2	-	-	1	4	2	-	3	2
10. Fistula,	2	-	-	-	-	1	-	-	-	-	-	-	1	-
11. *Stomach Diseases, etc.*,	212	4	8	20	1	19	2	8	9	30	14	11	60	26
12. *Pancreas Disease*,	2	-	1	-	-	-	-	-	-	-	-	-	-	1
13. Hepatitis,	97	-	5	16	-	12	2	10	4	14	-	5	21	8
14. Jaundice,	55	-	2	2	1	9	1	2	-	9	3	-	16	10
15. *Liver Diseases, etc.*,	151	4	6	18	-	18	3	10	4	24	-	10	39	15
16. *Spleen Diseases*,	8	-	-	1	-	1	-	-	-	2	2	-	2	-

Table IX. — Continued.

CAUSES OF DEATH.	State.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
III. — 5. *Urinary Organs.*														
Totals,	1,053	12	26	79	9	140	18	54	29	162	70	37	316	101
1. Nephritis,	129	1	1	8	-	14	-	6	1	20	9	1	62	6
2. Ischuria,	8	1	1	-	1	-	-	-	-	1	-	-	4	-
3. Nephria (Bright's Disease),	563	4	6	39	4	87	12	23	13	78	33	19	182	63
4. Diabetes,	90	-	8	6	-	12	4	7	1	15	7	8	14	18
5. Calculus (Stone, Gravel, etc.),	21	1	1	1	-	1	-	1	1	2	2	-	10	1
6. Cystitis,	91	-	3	8	2	12	-	5	6	19	8	1	20	7
7. *Kidney Diseases, etc.*,	151	5	11	17	2	14	2	12	7	27	11	8	24	11
III. — 6. *Generative Organs.*														
Totals,	68	-	2	8	-	10	-	7	5	5	3	3	21	4
1. Ovarian Dropsy,	34	-	-	2	-	6	-	6	3	3	2	2	8	2
2. *Diseases of Uterus, etc.*,	34	-	2	6	-	4	-	1	2	2	1	1	13	2
III. — 7. *Organs of Locomotion.*														
Totals,	110	3	1	7	3	8	-	7	2	17	5	5	42	10
1. Arthritis,	4	-	-	-	-	1	-	1	-	-	-	-	-	2
2. *Joint Diseases, etc.*,*	106	3	1	7	3	7	-	6	2	17	5	5	42	8
III. — 8. *Integumentary System.*														
Totals,	120	1	4	14	-	14	2	3	5	13	7	7	43	7
1. Phlegmon,	86	1	2	9	-	12	2	3	4	8	6	5	30	4
2. Ulcer,	18	-	2	1	-	1	-	-	1	4	-	1	6	2
3. *Skin Diseases, etc.*,	16	-	-	4	-	1	-	-	-	1	1	1	7	1

IV. — 1. *Dev. Diseases of Children.*														
Totals,	2,422	29	45	195	11	308	27	71	44	386	111	72	865	258
1. Still-born,	1,466	15	26	150	9	186	14	34	26	198	62	42	565	139
2. Infantile, Premature, etc.,†	612	8	12	19	2	88	2	21	12	139	33	22	157	97
3. Cyanosis,	67	–	2	6	–	6	–	4	1	16	3	1	26	2
4. Spina Bifida,	25	–	–	2	–	–	1	2	–	4	2	1	10	3
5. Other Malformations,	59	1	1	2	–	11	1	1	1	10	7	2	20	2
6. Teething,	193	5	4	16	–	17	9	9	4	19	4	4	87	15
IV. — 2. *Dev. Diseases of Adults.*														
Totals,	232	2	10	18	1	32	3	18	7	28	7	10	73	23
1. Paramenia,	5	–	–	–	–	–	1	1	–	–	2	–	1	–
2. Childbirth,‡	227	2	10	18	1	32	2	17	7	28	5	10	72	23
IV. — 3. *Dev. Diseases of Old People.*														
1. Old Age,	1,816	42	88	159	35	251	59	109	64	294	99	121	252	243
IV. — 4. *Dev. Diseases of Nutrition.*														
1. Atrophy and Debility,	770	8	29	105	–	112	14	44	19	107	19	16	171	126
V. — 1. *Accident or Negligence.*														
Totals,	1,241	15	60	71	10	171	30	75	21	181	52	40	350	165
1. Fractures and Contusions,§	279	2	18	7	–	25	8	16	6	35	12	7	87	56
2. Wounds,	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3. Burns and Scalds,	101	–	7	5	–	13	3	9	–	20	6	1	27	10
4. Poison,	48	–	1	5	1	5	1	2	–	10	4	2	12	5
5. Drowning (and Lost at Sea),	276	6	7	18	5	84	–	21	2	39	6	15	43	30
6. Suffocation (and Strangulation),	78	–	–	8	–	6	1	5	–	14	5	2	27	10
7. Otherwise ‖	50	–	1	3	2	4	2	3	2	5	3	1	18	6
8. Casualty,¶	409	7	26	25	2	34	15	19	11	58	16	12	136	48

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* Including Disease of Spine and Hip Disease. † See note on p. xcix. ‡ Not including Metria (Puerperal Fever). § Including 171 from Railroad Accidents.

‖ Under "Otherwise" (V. — 1. 7) are included Deaths from heat, cold, drinking cold water, lightning, surgical operations, and exposure.

¶ Manner not specified; returned as "Casualty."

TABLE IX. — Concluded.

CAUSES OF DEATH.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
V. — 2. *Battle.*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
V. — 3. *Homicide.*	20	-	1	1	-	1	-	6	1	1	2	-	7	-
V. — 4. *Suicide.*	165	1	6	13	1	26	3	12	5	23	8	4	41	22
V. — 5. *Execution.*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sudden, cause unknown, ...	9	2	3	1	-	-	-	-	-	3	-	-	-	-
Causes not specified,*	656	16	71	56	3	70	18	63	44	99	16	28	71	101

* Comprising 106 deaths from Hemorrhage, 61 from Tumor, 20 from Inflammation, and 469 deaths either returned as "Unknown," or of which no cause was stated in the Returns.

NOTE. — When a person is "found drowned," the case is classed under "accident or negligence." (V. — 1. 5.) Cases of death from cold, heat, drinking cold water, lightning, surgical operation, and exposure, are classed under "accident or negligence." (V. — 1. 7.) As "stricture of the urethra" is almost invariably the result of gonorrhœa, it is classed as (I — 2. 2). — [Dr. FARR.]

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NOTE.

Previously to the adoption, in the Registration Report of 1855, of the present NOSOLOGICAL ARRANGEMENT of Tables IX. and X., the term "Infantile" in those Tables included under a single designation not only all deaths returned under the several heads "Infantile," "Premature," or "Premature Births," but also all ascribed to "Debility" or "Unknown" causes, if under two years of age.

This plan was continued until the Registration Report of 1868, in which, to secure greater accuracy, the method now employed was adopted, by which Deaths returned under the head of "Premature," "Premature Births," or "Infantile," are stated *separately* in Table VIII., and *combined* in Tables IX. and X. Deaths of Children under two years, from "Debility" or "Unknown" cause, are no longer classed as "Infantile."

See Registration Report of 1868, p. cv, for a fuller explanation.

TABLE X.—CAUSES OF DEATH.—COMPARATIVE MORTALITY.

Exhibiting the Number of Deaths from Specified Causes (Nosologically Arranged) during each of the Five Years 1877–78–79–80–81, with the Number of Deaths, annually, to 100,000 of the Population; also the Number and Percentage of Deaths during the Five Years 1877–81, and during the entire Registration Period of Forty Years and Eight Months, ending Dec. 31, 1881.*

[Still-births included.]

DEATHS.							CAUSES OF DEATH.	DEATHS TO 100,000 POPULATION.†					PERCENTAGE OF ALL DEATHS.	
1877.	1878.	1879.	1880.	1881.	Five Yrs. 1877-81.	Forty Years and Eight Mos. end'g Dec. 31, 1881.		1877.	1878.	1879.	1880.	1881.	Five Yrs. 1877-81.	Forty Years and Eight Mos. end'g Dec. 31, 1881.
32,596	32,564	33,062	36,589	37,924	172,735	968,623	**All Causes**, . . .	1,973·20	1.971·28	2,001·43	2,051·99	2.126·87	–	–
31,686	31,727	32,287	35,839	37,259	168,798	933,336	**Specified Causes**,† .	1,918·13	1,920·61	1,954·51	2,009·93	2,089·57	100·00	100·00
							(CLASSES.)							
8,703	7,666	7,228	8,452	8,240	40,289	255,181	I.—ZYMOTIC DISEASES, .	526·85	464·07	437·55	474·01	462·12	23·87	27·34
7,630	7,688	7,749	8,182	8,693	39,942	245,379	II.—CONSTITUTIONAL DIS.,	461·88	465·40	469·09	458·87	487·53	23·66	26·29
9,668	10,549	11,530	13,145	13,660	58,552	247,206	III.—LOCAL DISEASES, .	585·26	638·58	697·97	737·20	766·08	34·69	26·49
4,482	4,628	4,396	4,778	5,240	23,524	148,444	IV.—DEVELOPMENTAL DIS.	271·32	280·16	266·12	267·96	293·87	13·94	15·90
1,203	1,196	1,384	1,282	1,426	6,491	37,126	V.—VIOLENT DEATHS, .	72·82	72·40	83·78	71·89	79·97	3·84	3·98
							(ORDERS.)							
8,509	7,441	7,007	8,163	7,921	39,041	248,584	I.—1. *Miasmatic Diseases*,	515·10	450·45	424·17	457.80	444·22	23·13	26·63
107	116	126	137	155	641	1,523	2. *Enthetic Diseases*, .	6·48	7·02	7·63	7·68	8·69	·38	·17
68	98	82	133	153	534	4,123	3. *Dietic Diseases*, .	4·12	5·93	4·96	7·46	8·58	·32	·44
19	11	13	19	11	73	951	4. *Parasitic Diseases*, .	1·15	·67	·79	1·07	·62	·04	·10
1,249	1,366	1,452	1,427	1,502	6,996	40,375	II.—1. *Diathetic Diseases*,	75·60	82·69	87·90	80·03	84·24	4·14	4·33
6,381	6,322	6,297	6,755	7,191	32,916	205,004	2. *Tubercular Diseases*,	386·28	382·71	381·19	378·84	403·29	19·52	21·96

							Diseases of—							
3,242	3,451	3,571	4,081	4,241	18,586	86,088	III.— 1. *Nervous System,* .	196·26	208·91	216·17	228·87	237·85	11·01	9·21
1,453	1,580	1,722	1,947	2,169	8,871	33,024	2. *Organs of Circulation*	87·96	95·65	104·24	109·19	121·64	5·26	3·54
2,639	3,000	3,639	4,192	4,172	17,642	73,681	3. *Respiratory Organs,*	159·75	181·61	220·29	235·10	233·98	10·45	7·90
1,358	1,398	1,487	1,705	1,727	7,625	35,177	4. *Digestive Organs,* .	82·20	84·63	86·99	95·62	96·85	4·52	3·77
701	820	885	931	1,053	4,390	12,006	5. *Urinary Organs,* .	42·44	49·64	53·57	52·21	59·05	2·60	1·29
70	80	79	82	68	379	1,183	6. *Generative Organs,*	4·24	4·84	4·78	4·60	3·81	·22	·13
136	132	110	125	110	613	3,142	7. *Organs of Locomotion*	8·23	7·99	6·66	7·01	6·17	·36	·34
69	88	87	82	120	446	2,905	8. *Integument'ry Syst'm*	4·18	5·33	5·27	4·60	6·73	·27	·31
							Dev. Diseases of—							
2,120	2,203	2,043	2,212	2,422	11,000	81,839	IV.— 1. *Children,* . . .	128·34	133·36	123·67	124·05	135·88	6·52	8·76
203	219	182	187	232	1,023	7,536	2. *Adults,* . . .	12·29	13·26	11·02	10·49	13·01	·61	·81
1,586	1,596	1,597	1,693	1,816	8,288	48,562	3. *Old People,* . .	96·00	96·61	96·68	94·95	101·85	4·91	5·20
573	610	574	686	770	3,213	10,507	4. *Dis. of Nutrition,* .	34·69	36·93	34·75	38·47	43·18	1·90	1·13
1,020	1,049	1,205	1,134	1,241	5,649	31,690	V.— 1. *Accid't or Negligence,*	61·74	63·50	72·94	63·60	69·60	3·35	3·40
-	-	-	-	-	-	1,246	2. *Battle,* . . .	-	-	-	-	-	-	·13
20	20	17	15	20	92	627	3. *Homicide,* . .	1·21	1·21	1·03	·84	1·12	·05	·07
163	126	161	133	165	748	3,545	4. *Suicide,* . . .	9·87	7·63	9·75	7·46	9·25	·44	·38
-	1	1	-	-	2	18	5. *Execution,* . .	-	·06	·06	-	-	-	-
4	15	18	5	9	51	772	*Sudden (cause unascertained),*	·24	·91	1·09	·28	·51	-	-
906	822	757	745	656	3,886	34,515	*Causes not specified,*‡ . .	54·85	49·76	45·83	41·78	36·79	-	-

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* For explanation of the classification adopted, see "Statistical Nosology," in Appendix.

† Owing to the undetermined increase of Population, the computations for the four years, 1876–79, based on the census of 1875, contain an unavoidable error of excess. The ratios for 1880 are based upon the census of that year, and therefore accurate.

‡ Including Still-born. See notes to Table IX.

TABLE X. — Continued.

DEATHS.							CAUSES OF DEATH.	DEATHS TO 100,000 POPULATION.					PERCENTAGE OF ALL DEATHS.	
1877.	1878.	1879.	1880.	1881.	Five Yrs. 1877-81.	Forty Years and Eight Mos. end'g Dec. 31, 1881.		1877.	1878.	1879.	1880.	1881.	Five Yrs. 1877-81.	Forty Years and Eight Mos. end'g Dec. 31, 1881.
							I. — 1. *Miasmatic.*							
26	3	8	38	47	122	5,399	1. Small-pox, ...	1·57	·18	·49	2·13	2·64	·07	·59
135	305	19	236	230	925	7,383	2. Measles, ...	8·17	18·46	1·15	13·24	12·90	·55	·79
467	404	850	574	397	2,692	35,228	3. Scarlatina, ...	28·27	24·46	51·45	32·09	22·26	1·59	3·77
2,634	1,934	1,734	1,769	1,706	9,777	21,368	4. Diphtheria, ...	159·45	117·08	104·97	99·21	95·68	5·79	2·29
143	78	121	122	157	621	1,887	5. Cerebro-Sp. Meningitis,	8·66	4·72	7·32	6·84	8·80	·37	·20
12	16	12	15	18	73	792	6. Quinsy, ...	·73	·97	·72	·84	1·01	·04	·08
544	583	559	625	677	2,988	18,759	7. Croup, ...	32·93	35·29	33·84	35·05	37·97	1·77	2·01
369	400	302	230	217	1,518	9,879	8. Whooping Cough, .	22·34	24·22	18·28	12·90	12·17	·90	1·06
814	679	637	882	1,072	4,084	41,489	9. Typhoid Fever,* . .	49·28	41·10	38·56	49·46	60·12	2·42	4·44
181	168	245	212	253	1,059	6,505	10. Erysipelas, . . .	10·96	10·17	14·83	11·89	14·19	·63	·70
55	53	107	96	116	427	1,950	11. Metria (Puerp. Fever),	3·33	3·21	6·48	5·38	6·50	·25	·21
12	7	12	14	14	59	192	12. Carbuncle, . . .	·73	·42	·73	·79	·79	·03	·02
29	22	45	22	15	133	1,702	13. Influenza, . . .	1·76	1·34	2·73	1·23	·84	·08	·18
580	602	372	395	360	2,309	30,729	14. Dysentery, . . .	35·11	36·44	22·52	22·15	20·19	1·37	3·29
343	365	370	480	458	2,016	11,455	15. Diarrhœa, . . .	20·76	22·10	22·40	26·92	25·68	1·20	1·23
1,927	1,573	1,349	2,118	1,861	8,828	44,299	16. Cholera Infantum, .	116·65	95·22	81·66	118·78	104·37	5·23	4·75
60	68	77	116	68	389	4,987	17. Cholera, . . .	3·63	4·12	4·66	6·51	3·81	·23	·53
3	7	5	21	11	47	299	18. Ague, ...	·18	·42	·30	1·18	·62	·03	·03
9	17	17	24	18	85	393	19. Remittent Fever, . .	·54	1·03	1·03	1·35	1·01	·05	·04
163	157	166	174	226	889	3,889	20. Rheumatism, . .	10·05	9·50	10·05	9·76	12·67	·53	·42

							I. — 2. *Enthetic.*							
58	71	71	55	64	319	1,013	1. Syphilis, ...	3·51	4·30	4·30	3·08	3·59	·19	·11
2	3	3	6	4	18	58	2. Stricture of Urethra, .	·12	·18	·18	·34	·22	·01	·01
14	15	5	3	3	40	72	3. Hydrophobia, . . .	·85	·91	·30	·17	·17	·02	·01
–	–	–	2	–	2	15	4. Glanders, ...	–	–	–	·11	–	–	–
3	2	2	3	4	14	87	5. Malignant Pustule, .	·18	·12	·12	·17	·22	·01	·01
30	25	45	68	80	248	278	6. Septicæmia, . . .	1·82	1·51	2·73	3·81	4·49	·15	·03
							I. — 3. *Dietic.*							
1	1	1	1	6	10	217	1. Privation, ...	·06	·06	·06	·06	·33	·006	·02
15	32	13	20	24	104	434	2. Purpura and Scurvy, .	·91	1·94	·79	1·12	1·35	·06	·05
13	16	20	32	26	107	1,043	3. Del. Trem. } Alcoholism,	·79	·97	1·21	1·79	1·46	·06	·11
39	49	48	80	97	313	2,429	4. Intemp'ce, } Alcoholism,	2·36	2·97	2·90	4·49	5·44	·19	·26
							I. — 4. *Parasitic.*							
11	6	7	7	9	40	398	1. Thrush, ...	·66	·37	·43	·39	·51	·02	·04
8	5	6	12	2	33	553	2. Worms, ...	·49	·30	·36	·67	·11	·02	·06
							II. — 1. *Diathetic.*							
4	4	1	1	1	11	86	1. Gout, ...	·24	·24	·06	·06	·06	·006	·01
412	370	380	271	292	1,725	16,780	2. Dropsy, ...	24·94	22·40	23·00	15·20	16·38	1·02	1·80
76	98	110	121	139	544	2,238	3. Anæmia, ...	4·60	5·93	6·66	6·79	7·79	·32	·24
646	807	862	928	949	4,192	15,134	4. Cancer,† . .	39·10	48·85	52·18	52·04	53·22	2·48	1·62
52	41	25	22	31	171	4,341	5. Canker (Noma), . .	3·15	2·48	1·52	1·23	1·74	·10	·47
59	46	74	84	90	353	1,796	6. Mortification, . .	3·57	2·79	4·48	4·71	5·05	·21	·19
							II. — 2. *Tubercular.*							
99	100	124	118	123	564	4,200	1. Scrofula, ...	5·99	6·05	7·51	6·62	6·90	·34	·45
421	458	511	604	692	2,686	11,275	2. Tabes Mesenterica, .	25·48	27·73	30·93	33·87	38·81	1·59	1·21
5,457	5,334	5,223	5,494	5,886	27,394	173,839	3. Phthisis (Con. of Lungs),	330·33	322·90	316·18	308·12	330·10	16·23	18·62
404	430	439	539	490	2,302	15,690	4. Hydrocephalus (T. Men.)	24·46	26·03	26·58	30·23	27·48	1·36	1·68

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* Including "Fever," Typhus Fever, Continued Fever, and "Bilious" Fever.

† Including Cancer of Stomach, Liver, and Uterus. See p. lxxv.

Table X.—Continued.

DEATHS.							CAUSES OF DEATH.	DEATHS TO 100,000 POPULATION.					PERCENTAGE OF ALL DEATHS.	
1877.	1878.	1879.	1880.	1881.	Five Yrs. 1877-81.	Forty Years and Eight Mos. end'g Dec. 31, 1881.		1877.	1878.	1879.	1880.	1881.	Five Yrs. 1877-81.	Forty Years and Eight Mos. end'g Dec. 31, 1881.
							III.—1. *Nervous System.*							
597	779	730	920	1,058	4,084	19,490	1. Cephalitis, ...	36·14	47·16	44·19	51·59	59·33	2·42	2·09
544	562	663	746	718	3,233	11,450	2. Apoplexy, ...	32·93	34·02	40·14	41·84	40·27	1·915	1·23
873	895	932	933	998	4,631	19,154	3. Paralysis, ...	52·85	54·18	56·42	52·32	55·97	2·74	2·05
112	153	118	142	129	654	2,750	4. Insanity, ...	6·78	9·26	7·14	7·96	7·23	·39	·29
4	4	9	3	6	26	99	5. Chorea, ...	·24	·24	·54	·17	·34	·015	·01
110	101	118	126	168	623	4,946	6. Epilepsy, ...	6·66	6·12	7·14	7·07	9·42	·37	·53
20	12	10	23	18	83	527	7. Tetanus, ...	1·21	·73	·60	1·29	1·01	·05	·05
568	542	589	686	665	3,050	16,918	8. Convulsions, ...	34·39	32·81	35·66	38·47	37·30	1·81	1·81
414	403	402	502	481	2,202	10,754	9. *Brain Diseases, etc.,* .	25·06	24·39	24·34	28·15	26·98	1·30	1·15
							III.—2. *Organs of Circulation.*							
44	49	85	104	121	403	857	1. Pericarditis, ...	2·67	2·97	5·14	5·83	6·79	·24	·09
12	22	29	21	31	115	311	2. Aneurism, ...	·73	1·33	1·76	1·18	1·74	·07	·03
1,397	1,509	1,608	1,822	2,017	8,353	31,856	3. *Heart Diseases, etc.,* .	84·56	91·35	97·34	102·18	113·11	4·95	3·42
							III.—3. *Respiratory Organs.*							
5	4	2	2	2	15	31	1. Epistaxis, ...	·30	·24	·12	·11	·11	·01	–
11	29	35	57	61	193	533	2. Laryngitis, ...	·67	1·76	2·12	3·20	3·42	·11	·06
397	548	690	780	843	3,258	8,144	3. Bronchitis, ...	24·03	33·17	41·77	43·74	47·28	1·93	·87
82	80	90	98	101	451	3,868	4. Pleurisy, ...	4·97	4·84	5·45	5·50	5·67	·27	·42
1,972	2,171	2,647	3,076	2,967	12,833	56,904	5. Pneumonia, ...	119·37	131·42	160·24	172·51	166·39	7·60	6·10
112	111	90	107	132	552	2,016	6. Asthma, ...	6·78	6·72	5·45	6·00	7·41	·33	·22
60	57	85	72	66	340	2,185	7. *Lung Diseases, etc.,* .	3·63	3·45	5·14	4·04	3·70	·20	·23

							III.—4. *Digestive Organs.*							
132	151	175	218	246	922	2,867	1. Gastritis, ...	7·99	9·14	10·59	12·22	13·80	·55	·31
395	388	392	492	456	2,128	10,393	2. Enteritis, ...	23·91	23·49	23·73	27·59	25·57	1·26	1·12
126	164	226	270	284	1,070	2,655	3. Peritonitis, ...	7·63	9·93	13·68	15·14	15·93	·635	·28
17	10	25	20	26	98	374	4. Ascites, ...	1·08	·60	1·52	1·12	1·46	·06	·04
18	23	19	21	21	102	464	5. Ulceration of Intestines,	1·09	1·39	1·15	1·18	1·18	·06	·05
43	51	44	46	58	242	1,082	6. Hernia, ...	2·60	3·09	2·67	2·58	3·25	·14	·12
81	71	81	67	66	366	2,346	7. Ileus, ...	4·90	4·30	4·90	3·76	3·70	·22	·25
11	7	8	13	23	62	234	8. Intussusception, . .	·67	·42	·48	·73	1·29	·04	·02
8	16	6	16	20	66	141	9. Stricture of Intestines, .	·48	·97	·36	·90	1·12	·04	·02
7	3	5	3	2	20	90	10. Fistula, ...	·42	·18	·30	·17	·11	·01	·01
177	186	156	211	212	942	6,091	11. *Stomach Diseases, etc.*, .	10·72	11·26	9·45	11·83	11·89	·56	·65
1	1	–	1	2	5	11	12. *Pancreas Disease*, . .	·06	·06	–	·06	·11	–	–
65	77	73	97	97	409	1,264	13. Hepatitis, ...	3·93	4·66	4·42	5·44	5·44	·24	·13
44	39	51	54	55	243	1,410	14. Jaundice, ...	2·67	2·36	3·09	3·03	3·08	·14	·15
232	207	170	170	151	930	5,695	15. *Liver Diseases, etc.*, .	14·04	12 53	10·29	9·53	8·47	·55	·61
1	4	6	6	8	25	60	16. *Spleen Diseases*, . .	·06	·24	·36	·34	·45	·015	·01
							III.—5. *Urinary Organs.*							
67	86	107	111	129	500	886	1. Nephritis, ...	4·05	5·21	6·48	6·22	7·23	·30	·09
3	8	4	12	8	35	160	2. Ischuria, ...	·18	·48	·24	·67	·45	·02	·02
329	383	435	441	563	2,151	4,315	3. Nephria (Bright's Dis.),	19·92	23·19	26·33	24·73	31·57	1·27	·46
73	83	73	83	90	402	1,578	4. Diabetes, . . .	4·42	5·02	4·42	4·66	5·05	·24	·17
27	17	16	13	21	94	770	5. Calculus (Gravel, etc.),	1·64	1·03	·97	·73	1·18	·06	·08
52	78	81	100	91	402	806	6. Cystitis, ...	3·15	4·72	4·90	5·61	5·10	·24	·08
150	165	169	171	151	806	3,491	7. *Kidney Diseases, etc.*, .	9·08	9·99	10·23	9·59	8·47	·47	·38
							III.—6. *Generative Organs.*							
22	40	27	46	34	169	552	1. Ovarian Dropsy, . .	1·33	2·42	1·63	2·58	1·905	·10	·06
48	40	52	36	34	210	631	2. *Uterus Diseases, etc.*, .	2·91	2·42	3·15	2·02	1·905	·12	·07

Table X. — Concluded.

Deaths. 1877.	1878.	1879.	1880.	1881.	Five Yrs. 1877-81.	Forty Years and Eight Mos. end'g Dec. 31, 1881.	CAUSES OF DEATH.	Deaths to 100,000 Population. 1877.	1878.	1879.	1880.	1881.	Percentage of all Deaths. Five Yrs. 1877-81.	Forty Years and Eight Mos. end'g Dec. 31, 1881.
							III.—7. *Organs of Locomotion.*							
–	4	2	3	4	13	189	1. Arthritis, . . .	–	·24	·12	·17	·22	·01	·02
136	128	108	122	106	600	2,953	2. *Joint Diseases, etc.,** .	8·23	7·75	6·54	6·84	5·95	·35	·32
							III.—8. *Integumentary Syst'm*							
40	66	66	48	86	306	1,629	1. Phlegmon, . . .	2·42	4·00	3·99	2·69	4·82	·18	·17
20	14	11	18	18	81	425	2. Ulcer, ...	1·21	·85	·67	1·01	·90	·05	·05
9	8	10	16	16	59	851	3. *Skin Diseases, etc.,* .	·55	·48	·61	·90	1·01	·04	·09
							IV.—1. *Dev. Dis. of Children.*†							
1,254	1,261	1,261	1,297	1,466	6,539	32,952	1. Still-born, . .	75·91	76·34	76·33	72·74	82·22	3·87	3·53
519	578	492	597	612	2,798	36,956	2. *Infantile, Premature, etc.*	31·42	34·99	29·78	33·48	34·32	1·66	3·96
38	62	72	68	67	307	853	3. Cyanosis, . . .	2·30	3·75	4·36	3·81	3·76	·18	·09
14	16	13	21	25	89	244	4. Spina Bifida, . . .	·85	·97	·79	1·18	1·40	·05	·02
36	60	54	45	59	254	838	5. Other Malformations, .	2·18	3·63	3·27	2·52	3·31	·15	·09
259	226	151	184	193	1,013	9,996	6. Teething, . . .	15·68	13·68	9·14	10·32	10·82	·60	1·07
							IV.—2. *Dev. Dis. of Adults.*							
5	5	8	4	5	27	110	1. Paramenia, . . .	·30	·30	·49	·23	·28	·02	·01
198	214	174	183	227	996	7,426	2. Childbirth,‡ . . .	11·99	12·96	10·53	10·26	12·73	·59	·80
							IV. — 3. *Dev. Diseases of Old People.*							
1,586	1,596	1,597	1,693	1,816	8,288	48,562	1. Old Age, . . .	96·00	96·61	96·68	94·95	101·85	4·91	5·20

							IV.—4. *Dev. Dis. of Nutrition.*							
573	610	574	686	770	3,213	10,507	1. Atrophy and Debility, .	34·69	36·93	34·75	38·47	43·18	1·90	1·13
							V.—1. *Accid't or Negligence.*							
221	222	215	243	279	1,180	31690	1. Fractures and Contus'ns,§	13·38	13·44	13·01	13·63	15·65	·70	3·40
-	-	-	-	-	-		2. Wounds, . . .	-	-	-	-	-	-	
83	79	88	80	101	431		3. Burns and Scalds, .	5·02	4·78	5·33	4·49	5·67	·25	
38	40	38	48	48	212		4. Poison, ...	2·30	2·42	2·30	2·69	2·69	·12	
260	299	461	251	276	1,547		5. Drown'g (and Lost at Sea)	15·74	18·10	27·91	14·08	15·48	·92	
40	59	67	74	78	318		6. Suffocat'n (and Strang'n)	2·42	3·57	4·05	4·15	4·37	·19	
27	70	36	47	50	230		7. Otherwise, . . .	1·63	4·24	2·18	2·63	2·80	·14	
351	280	300	391	409	1,731		8. Casualty,‖ . . .	21·25	16·95	18·16	21·93	22·94	1·03	
-	-	-	-	-	-	1,246	V.—2. *Battle*, . . .	-	-	-	-	-	-	·13
20	20	17	15	20	92	627	V.—3. *Homicide*, . .	1·21	1·21	1·03	·84	1·12	·05	·07
163	126	161	133	165	748	3,545	V.—4. *Suicide*,¶ . .	9·87	7·63	9·75	7·46	9·25	·44	·38
-	1	1	-	-	2	18	V.—5. *Execution*, . .	-	·06	·06	-	-	-	-
4	15	18	5	9	51	772	Sudden, cause unknown, .	·24	·91	1·09	·28	·51	-	-
906	822	757	745	656	3,886	34,515	Causes not specified,** .	54·85	49·76	45·83	41·78	36·79	-	-

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* Including Disease of Spine and Hip Disease.

† See Note on p. xcix.

‡ Not including Metria (Puerperal Fever).

§ Including Railroad Accidents.

‖ In preceding reports, until 1877, classed as V.—6.

¶ Totals: *manner* not stated.

** Including deaths from "Hemorrhage," "Tumor," and "Inflammation."

TABLE XI. — *Causes of Death registered in Massachusetts*

Class.	CAUSES OF DEATH.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.
	ALL CAUSES. . . .	22,019	21,523	21,715	24,130	25,102	23,948	28,654	29,579	27,011	24,683	23,779
	SPECIFIED CAUSES . .	21,521	21,069	21,266	23,563	24,393	23,249	27,931	28,850	26,340	24,105	23,301
	[CLASSES.]											
I.	ZYMOTIC DISEASES . .	6,016	5,400	5,416	6,088	6,765	6,569	9,429	9,505	8,211	5,856	5,505
II.	CONSTITUTIONAL . .	6,333	6,480	6,559	6,567	6,573	6,119	6,642	6,652	6,541	6,422	6,129
III.	LOCAL	4,397	4,621	4,670	5,629	5,760	5,443	6,543	6,874	6,443	6,474	6,344
IV.	DEVELOPMENTAL . .	3,981	3,868	3,794	4,302	4,321	3,926	4,160	4,157	4,215	4,378	4,432
V.	VIOLENT DEATHS . .	794	700	827	977	974	1,192	1,157	1,662	930	975	891
	[ORDERS.]											
I.	1. MIASMATIC DISEASES	5,856	5,211	5,245	5,830	6,568	6,372	9,180	9,160	8,051	5,765	5,409
	2. ENTHETIC " . .	15	19	26	38	40	35	42	41	43	20	36
	3. DIETIC " . .	103	125	114	184	133	141	177	274	100	54	47
	4. PARASITIC " . .	42	45	31	36	24	21	30	30	17	17	13
II.	1. DIATHETIC " . .	970	1,008	1,062	1,048	1,054	1,023	1,088	1,046	1,077	1,092	1,046
	2. TUBERCULAR " . .	5,363	5,472	5,497	5,519	5,519	5,096	5,554	5,606	5,464	5,330	5,083
III.	1. DISEASES OF NERVOUS SYSTEM . .	1,722	1,811	1,730	2,039	2,101	2,042	2,241	2,557	2,383	2,334	2,286
	2. " ORGANS OF CIRCULATION. . .	601	590	607	730	768	734	840	792	847	876	891
	3. " RESPIRATORY ORGANS . . .	1,289	1,407	1,414	1,689	1,708	1,532	2,181	2,269	1,886	2,024	1,825
	4. " DIGESTIVE ORGANS	545	579	644	850	827	807	908	836	855	829	882
	5. " URINARY ORGANS .	116	119	135	145	169	174	205	197	259	222	276
	6. " ORGANS OF GENERATION . . .	7	16	15	40	34	39	36	45	40	31	41
	7. " ORGANS OF LOCOMOTION . .	69	62	77	75	89	69	67	98	99	83	78
	8. " INTEGUMENTARY SYSTEM . .	48	37	48	61	64	46	65	80	74	75	65
IV.	1. DEVELOPMENTAL DIS. OF CHILDREN . .	2,458	2,456	2,349	2,819	2,849	2,522	2,453	2,454	2,557	2,686	2,771
	2. " ADULTS . .	197	182	206	238	217	149	157	169	160	201	196
	3. " OLD PEOPLE .	1,199	1,132	1,168	1,101	1,107	1,137	1,391	1,421	1,361	1,358	1,341
	4. DISEASES OF NUTRITION .	127	98	71	144	148	118	159	113	137	133	124
V.	1. ACCIDENT OR NEGLIGENCE	670	599	726	845	854	783	822	953	764	890	801
	2. BATTLE	-	-	-	-	8	298	244	634	61	1	-
	3. HOMICIDE	27	18	18	19	19	18	24	10	27	11	15
	4. SUICIDE.	97	82	83	113	92	92	67	65	78	73	75
	5. EXECUTION	-	1	-	-	1	1	-	-	-	-	-
	SUDDEN DEATHS, CAUSE UNASCERTAINED. . . .	16	14	20	19	29	38	32	28	21	18	25
	CAUSES NOT STATED, OR ILL-DEFINED.	482	440	429	548	680	661	691	701	650	560	453

for each of the Twenty-five Years, 1857 to 1881.

1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	CAUSES.
26,653	27,148	28,348	29,333	36,302	35,158	33,356	36,352	34,460	32,596	32,564	33,062	36,589	37,924	ALL CAUSES.
25,189	25,713	26,998	28,043	34,845	33,856	32,218	35,335	33,461	31,686	31,727	32,287	35,839	37,259	SPECIFIED "
6,862	6,891	6,913	6,538	10,787	9,716	8,272	9,735	9,458	8,703	7,666	7,228	8,452	8,240	I ZYMOT.
6,299	6,569	7,185	7,272	8,042	8,071	7,669	8,160	7,703	7,630	7,688	7,749	8,182	8,693	II. CONST.
7,164	7,184	7,559	8,166	9,622	9,479	9,804	10,818	10,073	9,668	10,549	11,530	13,145	13,660	III. LOCAL.
3,865	4,027	4,206	4,771	5,103	5,125	5,055	5,200	4,802	4,482	4,628	4,396	4,778	5,240	IV. DEV. DIS.
999	1,042	1,135	1,296	1,291	1,466	1,418	1,422	1,425	1,203	1,196	1,384	1,282	1,426	V. VIOL. D.
														I.
6,691	6,717	6,767	6,389	10,586	9,534	8,079	9,548	9,257	8,509	7,441	7,007	8,163	7,921	1. MIASMATIC.
48	39	47	38	37	49	53	63	78	107	116	126	137	155	2. ENTHETIC.
108	122	90	98	154	120	127	116	104	68	98	82	133	158	3. DIETIC.
15	13	9	13	10	12	13	8	19	19	11	13	19	11	4. PARASITIC.
														II.
1,142	1,173	1,306	1,313	1,149	1,411	1,264	1,286	1,324	1,249	1,366	1,452	1,427	1,502	1. DIATHETIC.
5,157	5,396	5,879	5,959	6,593	6,660	6,405	6,874	6,379	6,381	6,322	6,297	6,756	7,191	2. TUBERCUL.
														III.
2,605	2,576	2,776	2,855	3,618	3,332	3,201	3,380	3,280	3,242	3,451	3,571	4,081	4,241	1. NERV. SYST.
1,030	947	1,004	1,186	1,254	1,299	1,366	1,416	1,441	1,453	1,580	1,722	1,947	2,169	2. CIRCUL.
2,157	2,231	2,185	2,356	2,834	2,698	3,081	3,684	3,151	2,639	3,000	3,639	4,192	4,172	3. RESP'Y.
887	870	987	1,069	1,122	1,241	1,290	1,397	1,310	1,358	1,398	1,497	1,705	1,727	4. DIGESTIVE.
293	351	392	470	467	599	609	648	626	701	820	885	931	1,053	5. URINARY.
46	29	40	40	48	50	58	69	69	70	80	79	82	68	6. GENERAT.
83	90	97	93	114	169	111	120	108	136	132	110	125	110	7. LOCOMOT.
63	90	78	97	105	91	88	104	88	69	88	87	82	120	8. INTEG.
														IV.
1,958	2,063	2,118	2,465	2,594	2,457	2,567	2,511	2,232	2,120	2,203	2,043	2,212	2,422	1. CHILDREN.
211	234	259	233	271	305	299	302	278	203	219	182	187	232	2. ADULTS.
1,309	1,375	1,444	1,554	1,664	1,762	1,549	1,732	1,661	1,586	1,596	1,597	1,693	1,816	3. AGED.
387	355	385	519	574	691	640	655	631	573	610	574	686	770	4. NUTRIT'N.
														V.
893	924	1,015	1,149	1.147	1,321	1,277	1,237	1,280	1,020	1,049	1,205	1,134	1,241	1. ACCIDENT.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	2. BATTLE.
16	25	29	25	27	26	26	23	24	20	20	17	15	20	3. HOMICIDE.
88	92	91	122	117	117	115	159	119	163	126	161	133	165	4. SUICIDE.
2	1	-	-	-	2	-	3	2	-	1	1	-	-	5. EXECUTION.
31	23	26	16	12	16	13	1	12	4	15	18	5	9	SUDDEN.
1,433	1,412	1,324	1,274	1,445	1,286	1,125	1,016	987	906	822	757	745	656	NOT STATED.

TABLE XI. — *Causes of Death registered,*

Class.	CAUSES OF DEATH.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.
I.	**ORDER 1.**											
	1. Small-pox	23	12	255	334	33	40	42	242	221	141	196
	2. Measles	101	301	110	224	209	369	141	320	136	109	194
	3. Scarlatina	2,013	1,033	1,006	916	1,137	1,261	1,399	1,503	807	385	828
	4. Diphtheria	-	18	32	258	643	663	1,420	1,231	672	399	251
	5. Cerebro-spinal meningitis*	-	-	-	-	-	-	-	-	-	-	-
	6. Quinsy	49	51	42	37	70	44	32	43	24	8	13
	7. Croup	518	497	528	579	461	484	864	768	504	431	356
	8. Whooping-cough	280	347	357	203	406	254	295	235	363	287	297
	9. Typhoid Fever	1,010	901	932	937	989	1,135	1,442	1,344	1,694	1,091	965
	10. Erysipelas	137	147	148	178	201	120	174	186	148	142	144
	11. Metria (Puerperal Fever)	41	41	53	67	67	51	47	42	42	40	40
	12. Carbuncle	3	2	5	3	14	4	5	3	8	7	9
	13. Influenza	92	76	50	67	60	16	70	29	52	50	26
	14. Dysentery	715	752	612	441	532	479	1,156	1,186	1,548	949	658
	15. Diarrhœa	135	175	151	274	272	340	671	589	464	304	270
	16. Cholera Infantum	631	720	831	1,078	1,266	900	1,164	1,198	1,154	1,078	966
	17. Cholera	38	66	66	99	79	85	121	95	84	192	64
	18. Ague	9	7	6	6	1	17	24	9	10	12	13
	19. Remittent Fever	8	9	2	10	16	11	18	39	18	12	17
	20. Rheumatism	53	56	59	119	112	99	95	98	102	128	102
	ORDER 2.											
	1. Syphilis	14	12	19	29	37	31	35	37	38	17	31
	2. Stricture of Urethra	-	3	-	1	-	-	1	1	2	-	1
	3. Hydrophobia	1	2	3	2	-	-	1	1	-	-	1
	4. Glanders	-	1	1	-	-	-	-	-	-	-	-
	5. Malignant Pustule	-	1	3	6	3	4	5	2	3	3	3
	6. Septicæmia	-	-	-	-	-	-	-	-	-	-	-
	ORDER 3.											
	1. Privation	1	-	1	5	3	1	2	105	29	3	5
	2. Purpura and Scurvy	12	13	9	14	8	16	13	27	9	8	7
	3. Del. Trem. } Alcoholism	27	23	26	59	42	45	61	49	26	14	13
	4. Intemp'nce } Alcoholism	63	89	78	106	80	79	101	93	36	29	22
	ORDER 4.											
	1. Thrush	20	29	18	20	14	8	10	4	4	2	1
	2. Worms	22	16	13	16	10	13	20	26	13	15	12
II.	**ORDER 1.**											
	1. Gout	-	1	2	1	4	3	2	3	-	1	1
	2. Dropsy	512	481	522	470	440	467	533	502	492	462	421
	3. Anæmia	36	56	49	49	111	64	67	82	68	77	66
	4. Cancer	242	289	306	335	336	319	324	330	375	416	395
	5. Noma (Canker)	137	138	144	144	119	129	109	93	100	96	110
	6. Mortification	43	43	39	49	44	41	53	36	42	40	53
	ORDER 2.											
	1. Scrofula	105	125	108	163	208	152	152	154	149	110	109
	2. Tabes Mesenterica	224	259	216	292	327	265	291	273	259	232	179
	3. Phthisis (Consumption)	4,625	4,574	4,704	4,557	4,522	4,269	4,667	4,733	4,661	4,600	4,362
	4. Hydrocephalus (Tuberc. Meningitis)	409	514	469	507	462	410	444	446	395	388	433
III.	**ORDER 1.**											
	1. Cephalitis	415	465	419	503	501	485	524	728	669	595	525
	2. Apoplexy	163	197	207	238	274	251	268	321	263	261	281
	3. Paralysis	331	369	375	402	417	401	471	473	479	487	469
	4. Insanity	58	62	59	71	61	66	62	64	75	106	111
	5. Chorea	2	1	1	5	2	1	5	1	3	4	4
	6. Epilepsy	138	110	130	180	176	143	161	166	106	113	124
	7. Tetanus	9	17	12	17	9	17	9	11	11	13	14
	8. Convulsions	421	438	336	396	398	447	467	453	482	465	477
	9. *Brain Diseases, &c.*	185	152	191	227	263	231	274	340	295	290	281
	ORDER 2.											
	1. Pericarditis	10	4	9	20	20	16	13	11	14	20	13
	2. Aneurism	2	4	3	2	6	7	6	7	7	11	5
	3. *Heart Diseases, &c.*	589	582	595	708	742	711	821	774	826	845	873

* Previously to 1873, classed with Cephalitis.

for Twenty-five Years — Continued.

1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	CAUSES.
														I.—ORDER 1.
20	59	131	296	1,029	668	26	34	32	26	3	8	38	47	1. Small-pox.
287	222	[illegible]	131	428	180	161	233	47	135	305	19	236	250	2 Measles.
1,388	1,406	[illegible]	867	1,377	1,472	1,382	1,684	1,222	467	404	850	574	397	3. Scarlatina.
297	266	242	274	273	310	502	1,200	2,610	2,634	1,934	1,734	1,769	1,706	4. Diphtheria
–	–	–	–	-	747	242	170	107	143	78	121	122	157	5. Cer Sp M.
17	15	8	11	11	7	19	30	14	12	16	12	15	18	6. Quinsy.
485	473	[illegible]	473	480	435	411	680	684	544	583	559	625	677	7. Croup.
247	230	[illegible]	243	363	264	449	242	192	369	400	302	230	217	8. Wh. Cough
866	1,285	[illegible]	1,116	1,703	1,406	1,147	1,059	881	814	679	637	882	1.072	9. Typh. Fev.
159	176	[illegible]	201	212	275	216	257	209	181	168	245	212	253	10. Erysipelas.
66	61	[illegible]	49	65	98	101	99	80	65	53	107	96	116	11. Metria.
5	2	4	8	5	8	8	8	6	12	7	12	14	14	12. Carbuncle.
29	49	[illegible]	33	34	35	48	58	48	29	22	45	22	15	13. Influenza
685	481	[illegible]	389	564	435	366	437	417	580	602	372	325	310	14. Dysentery.
293	305	[illegible]	344	464	353	398	413	335	343	365	370	420	458	15 Diarrhœa.
1,561	1,424	[illegible]	1,718	3,254	2,553	2,322	2,606	2,087	1,927	1,573	1,349	2,118	1,861	16. Ch. Infant.
117	95	107	26	187	106	85	94	91	60	68	77	116	68	17. Cholera.
12	5	11	7	12	15	6	16	2	3	7	5	21	11	18. Ague.
16	11	6	7	15	12	7	11	7	9	17	17	24	18	19. Rem. Fev.
128	113	136	127	160	195	173	217	186	166	157	166	174	226	20. Rheumat.
														ORDER 2.
36	34	37	32	27	35	46	43	46	58	71	71	55	64	1. Syphilis.
2	–	3	1	3	9	3	4	3	2	3	3	6	4	2. Strict.
–	–	2	–	–	–	–	–	4	14	13	5	3	3	3. Hydropho.
–	1	–	2	4	2	–	2	3	–	–	–	2	-	4. Glanders.
9	4	5	3	3	3	4	3	3	3	2	2	3	4	5. Mal. Pust.
–	–	–	–	–	–	–	11	19	30	25	45	68	60	6. Septicæmia.
														ORDER 3.
16	22	2	1	1	–	1	6	–	1	1	1	1	6	1. Privation.
18	19	13	9	19	11	19	23	18	15	32	13	20	24	2. P & Scur.
23	27	27	30	45	30	32	15	15	13	16	20	32	26	3. Del. Trem.
31	34	48	58	80	79	75	72	71	30	49	48	80	97	4. Intemp.
														ORDER 4.
2	4	1	1	1	2	5	3	9	11	6	7	7	9	1. Thrush.
13	9	8	12	9	10	8	5	10	8	5	6	12	2	2. Worms.
														II.—ORDER 1.
1	2	4	1	–	1	3	2	3	4	4	1	1	1	1 Gout.
476	458	491	527	618	545	469	474	445	412	370	380	271	292	2. Dropsy.
70	67	77	83	79	179	76	70	86	76	98	110	121	189	3. Anæmia.
445	492	516	551	542	611	585	593	657	646	807	862	928	949	4 Cancer.
113	115	172	102	154	137	94	99	72	52	41	25	22	82	5. Noma.
43	39	46	49	56	38	37	48	61	59	46	74	84	90	6. Mortifica.
														ORDER 2.
140	115	105	149	121	122	108	121	103	99	100	124	118	123	1. Scrofula.
242	263	362	333	470	522	578	568	552	421	458	511	604	6?2	2. Tabes Mes.
4,437	4,659	5,003	5,070	5,536	5,556	5,284	5,738	5.327	5,457	5,334	5,223	5,494	5,886	3. Consump.
337	359	406	407	446	460	435	447	397	404	430	439	539	49?	4. Hydroceph.
														III.—ORDER. 1.
577	572	601	620	1,031	743	709	694	635	597	779	730	920	1,058	1. Cephalitis.
311	331	3?4	3?6	409	431	433	460	507	544	562	663	746	718	2 Apoplexy.
630	607	630	714	791	858	775	896	826	873	895	932	933	998	3 Paralysis.
91	87	103	89	103	88	100	148	146	112	153	118	142	129	4. Insanity.
4	1	1	3	6	7	6	3	4	4	4	9	3	6	5. Chorea.
134	130	134	121	146	123	134	135	127	110	101	118	126	168	6. Epilepsy.
14	18	19	18	18	12	24	19	20	20	12	10	23	18	7. Tetanus.
489	479	527	522	658	629	595	607	597	568	542	589	686	665	8. Convul.
345	351	367	378	456	442	425	448	418	414	403	402	502	481	9. *Brain Dis.*
														ORDER 2.
24	19	15	19	16	28	39	44	49	44	49	85	104	121	1. Pericard.
12	10	8	12	15	13	25	12	17	12	22	29	21	31	2 Aneurism.
984	918	981	1,155	1,223	1,258	1,302	1,360	1,375	1,397	1,509	1,608	1,822	2,017	3. *Heart Dis.*

TABLE XI. — *Causes of Death registered,*

Class.	CAUSES OF DEATH.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.
I.	ORDER 1.											
	1. Small-pox	23	12	255	334	33	40	42	242	221	141	196
	2. Measles	101	301	110	224	209	369	141	320	136	109	194
	3. Scarlatina	2,013	1,033	1,006	916	1,137	1,261	1,399	1,503	807	385	828
	4. Diphtheria	–	18	32	258	643	663	1,420	1,231	672	399	251
	5. Cerebro-spinal meningitis*	–	–	–	–	–	–	–	–	–	–	–
	6. Quinsy	49	51	42	37	70	44	32	43	24	8	13
	7. Croup	518	497	528	579	461	484	864	768	504	431	356
	8. Whooping-cough	280	347	357	203	406	254	295	235	363	287	297
	9. Typhoid Fever	1,010	901	932	937	989	1,135	1,442	1,344	1,694	1,091	965
	10. Erysipelas	137	147	148	178	201	120	174	186	148	142	144
	11. Metria (Puerperal Fever)	41	41	53	67	67	51	47	42	42	40	40
	12. Carbuncle	3	2	5	3	14	4	5	3	8	7	9
	13. Influenza	92	76	50	67	60	16	70	29	52	50	26
	14. Dysentery	715	752	612	441	532	479	1,156	1,186	1,548	949	658
	15. Diarrhœa	135	175	151	274	272	340	671	589	464	304	270
	16. Cholera Infantum	631	720	831	1,078	1,266	900	1,164	1,198	1,154	1,078	966
	17. Cholera	38	66	66	99	79	85	121	95	84	192	64
	18. Ague	9	7	6	6	1	17	24	9	10	12	13
	19. Remittent Fever	8	9	2	10	16	11	18	39	18	12	17
	20. Rheumatism	53	56	59	119	112	99	95	98	102	128	102
	ORDER 2.											
	1. Syphilis	14	12	19	29	37	31	35	37	38	17	31
	2. Stricture of Urethra	–	3	–	1	–	–	1	1	2	–	1
	3. Hydrophobia	1	2	3	2	–	–	1	1	–	–	1
	4. Glanders	–	1	1	–	–	–	–	–	–	–	–
	5. Malignant Pustule	–	1	3	6	3	4	5	2	3	3	3
	6. Septicæmia	–	–	–	–	–	–	–	–	–	–	–
	ORDER 3.											
	1. Privation	1	–	1	5	3	1	2	105	29	3	5
	2. Purpura and Scurvy	12	13	9	14	8	16	13	27	9	8	7
	3. Del. Trem. } Alcoholism	27	23	26	59	42	45	61	49	26	14	13
	4. Intemp'nce } Alcoholism	63	89	78	106	80	79	101	93	36	29	22
	ORDER 4.											
	1. Thrush	20	29	18	20	14	8	10	4	4	2	1
	2. Worms	22	16	13	16	10	13	20	26	13	15	12
II.	ORDER 1.											
	1. Gout	–	1	2	1	4	3	2	3	–	1	1
	2. Dropsy	512	481	522	470	440	467	533	502	492	462	421
	3. Anæmia	36	56	49	49	111	64	67	82	68	77	66
	4. Cancer	242	289	306	335	336	319	324	330	375	416	395
	5. Noma (Canker)	137	138	144	144	119	129	109	93	100	96	110
	6. Mortification	43	43	39	49	44	41	53	36	42	40	53
	ORDER 2.											
	1. Scrofula	105	125	108	163	208	152	152	154	149	110	109
	2. Tabes Mesenterica	224	259	216	292	327	265	291	273	259	232	179
	3. Phthisis (Consumption)	4,625	4,574	4,704	4,557	4,522	4,269	4,667	4,733	4,661	4,600	4,362
	4. Hydrocephalus (Tuberc. Meningitis)	409	514	469	507	462	410	444	446	395	388	433
III.	ORDER 1.											
	1. Cephalitis	415	465	419	503	501	485	524	728	669	595	525
	2. Apoplexy	163	197	207	238	274	251	268	321	263	261	281
	3. Paralysis	331	369	375	402	417	401	471	473	479	487	469
	4. Insanity	58	62	59	71	61	66	62	64	75	106	111
	5. Chorea	2	1	1	5	2	1	5	1	3	4	4
	6. Epilepsy	138	110	130	180	176	143	161	166	106	113	124
	7. Tetanus	9	17	12	17	9	17	9	11	11	13	14
	8. Convulsions	421	438	336	396	398	447	467	453	482	465	477
	9. *Brain Diseases, &c.*	185	152	191	227	263	231	274	340	295	290	281
	ORDER 2.											
	1. Pericarditis	10	4	9	20	20	16	13	11	14	20	13
	2. Aneurism	2	4	3	2	6	7	6	7	7	11	5
	3. *Heart Diseases, &c.*	589	582	595	708	742	711	821	774	826	845	873

* Previously to 1873, classed with Cephalitis.

for Twenty-five **Years — Continued.**

1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	CAUSES.
														I.—Order 1.
39	59	131	295	1,029	668	26	34	32	26	3	8	38	47	1. Small-pox
297	221	259	131	428	180	161	233	47	135	305	19	236	250	2 Measles.
1,308	1,405	682	867	1,377	1,472	1,382	1,684	1,222	467	404	850	574	397	3. Scarlatina.
297	296	242	274	273	310	502	1,200	2,610	2,634	1,934	1,734	1,769	1,706	4. Diphtheria
–	–	–	–	–	747	242	170	107	143	78	121	122	157	5. Cer Sp M.
17	15	8	11	11	7	19	30	14	12	16	12	15	18	6. Quinsy.
485	472	434	473	480	435	411	680	684	544	583	559	625	677	7. Croup
247	239	330	243	363	264	449	242	192	369	400	302	230	217	8. Wh. Cough
806	1,305	1,333	1,116	1,703	1,406	1,147	1,059	881	814	679	637	882	1,072	9. Typh. Fev.
159	170	129	201	212	235	216	257	209	181	168	245	212	253	10. Erysipelas.
68	61	66	49	65	98	101	99	80	55	53	107	96	116	11. Metria.
5	2	4	8	5	8	8	8	6	12	7	12	14	14	12. Carbuncle.
29	49	36	33	34	35	48	58	48	29	22	45	22	15	13 Influenza
683	481	471	349	564	435	366	437	417	580	602	372	325	300	14. Dysentery.
293	306	457	344	464	353	398	413	335	343	365	370	400	458	15 Diarrhœa.
1,561	1,424	1,914	1,718	3,254	2,553	2,322	2,606	2,087	1,927	1,573	1,349	2,118	1,861	16. Ch. Infant.
117	95	107	96	137	106	95	94	91	60	68	77	116	68	17. Cholera.
12	5	11	7	12	15	6	16	2	3	7	5	21	11	18. Ague
16	11	6	7	15	12	7	11	7	9	17	17	24	18	19. Rem. Fev.
128	113	136	127	160	195	173	217	186	166	157	166	174	226	20. Rheumat.
														Order 2.
36	34	37	32	27	35	46	43	46	58	71	71	55	64	1. Syphilis.
3	–	3	1	3	9	3	4	3	2	3	3	6	4	2. Strict.
–	–	2	–	–	–	–	–	4	14	15	5	3	3	3. Hydropho.
–	1	–	2	4	2	–	2	3	–	–	–	2	-	4. Glanders.
9	4	5	3	3	3	4	3	3	3	2	2	3	4	5. Mal. Post.
–	–	–	–	–	–	–	11	19	30	25	45	68	80	6. Septicæmia.
														Order 3.
16	22	2	1	1	–	1	6	–	1	1	1	1	6	1 Privation.
18	19	13	9	19	11	19	23	18	15	32	13	20	24	2. P & Scur.
23	27	27	30	45	30	32	15	15	13	16	20	32	26	3. Del. Trem.
51	54	48	58	89	79	75	72	71	39	49	48	80	57	4. Intemp.
														Order 4.
2	4	1	1	1	2	5	3	9	11	6	7	7	9	1. Thrush.
12	9	8	12	9	10	8	5	10	8	5	6	12	2	2. Worms.
														II.—Order 1.
1	2	4	1	–	1	3	2	3	4	4	1	1	1	1 Gout.
470	458	491	527	618	545	469	474	445	412	370	380	271	292	2. Dropsy.
70	67	77	83	79	79	76	70	86	76	98	110	121	189	3. Anæmia.
445	492	516	551	542	611	585	593	657	646	807	862	928	949	4 Cancer.
113	115	172	102	154	137	94	99	72	52	41	25	22	37	5. Noma.
43	29	46	49	56	38	37	48	61	59	46	74	84	90	6. Morifica.
														Order 2.
140	115	105	149	121	122	108	121	103	99	100	124	118	123	1. Scrofula.
243	263	363	333	470	522	578	568	552	421	458	511	604	622	2. Tabes Mes.
4,437	4,659	5,003	5,070	5,536	5,556	5,284	5,738	5.327	5,457	5,334	5,223	5,494	5,886	3. Consump.
337	359	408	407	446	460	435	447	397	404	430	439	539	491	4. Hydroceph.
														III.—Order. 1
577	572	601	620	1,031	742	709	694	635	597	779	730	920	1,058	1. Cephalitis.
311	331	394	370	409	431	433	460	507	544	562	663	745	718	2 Apoplexy.
630	607	630	714	791	858	775	896	826	873	895	932	933	998	3 Paralysis.
91	87	103	89	103	88	100	148	146	112	153	118	142	129	4. Insanity.
4	1	1	3	6	7	6	3	4	4	4	9	3	6	5. Chorea.
134	130	134	121	146	123	134	135	127	110	101	118	126	168	6 Epilepsy.
14	18	19	18	18	12	24	19	20	20	12	10	23	18	7 Tetanus.
499	479	527	522	658	629	595	607	597	568	542	589	686	665	8. Convul.
345	351	367	378	456	442	425	448	418	414	403	402	502	481	9. *Brain Dis.*
														Order 2.
24	19	15	19	16	28	39	44	49	44	49	85	104	121	1 Pericard.
12	10	8	12	15	13	25	12	17	12	22	29	21	31	2 Aneurism.
984	918	981	1,155	1,223	1,258	1,302	1,360	1,375	1,397	1,509	1,608	1,822	2,017	3. *Heart Dis.*

TABLE XI.—*Causes of Death registered,*

Class.	CAUSES OF DEATH.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.
III.	ORDER 3.											
	1. Epistaxis	–	–	–	–	3	2	–	3	2	–	1
	2. Laryngitis	1	1	4	15	18	7	11	14	15	7	15
	3. Bronchitis	39	39	41	110	188	165	197	194	179	202	208
	4. Pleurisy	115	122	126	119	119	102	128	143	88	92	94
	5. Pneumonia	1,075	1,174	1,167	1,333	1,285	1,140	1,724	1,801	1,403	1,639	1,378
	6. Asthma	22	38	30	50	42	44	58	53	58	37	55
	7. *Lung Diseases, &c.* . .	37	33	46	62	53	52	63	61	61	47	74
	ORDER 4.											
	1. Gastritis	26	34	34	50	88	67	87	77	93	63	79
	2. Enteritis	189	202	252	276	239	231	234	271	242	240	255
	3. Peritonitis	13	16	22	56	45	34	71	54	65	65	77
	4. Ascites	3	8	3	19	12	23	14	22	21	17	8
	5. Ulceration of Intestines .	11	2	14	23	13	14	24	13	14	23	17
	6. Hernia	11	25	8	30	40	30	20	25	53	30	31
	7. Ileus	74	63	54	70	50	72	82	63	67	68	51
	8. Intussusception . . .	2	–	3	5	1	4	5	2	3	5	6
	9. Stricture of Intestines .	–	–	–	1	–	–	1	–	–	1	3
	10. Fistula	1	2	3	2	–	1	6	1	–	2	6
	11. *Stomach Diseases, &c.* .	56	59	62	108	106	111	104	87	76	83	112
	12. *Pancreas Disease* . .	–	–	1	1	–	–	–	–	–	1	–
	13. Hepatitis	9	5	12	31	40	35	48	45	41	53	46
	14. Jaundice	27	26	22	35	35	29	45	26	37	31	46
	15. *Liver Diseases, &c.* . .	121	134	153	143	157	153	166	150	141	146	143
	16. *Spleen Diseases, &c.* . .	2	3	1	–	1	3	1	–	2	1	2
	ORDER 5.											
	1. Nephritis	5	4	8	8	16	8	13	36	16	15	14
	2. Ischuria	7	7	4	4	10	8	8	3	1	3	2
	3. Nephria (Bright's Disease)	3	3	2	5	14	13	33	13	55	34	54
	4. Diabetes	23	35	35	38	35	36	45	31	52	31	55
	5. Calculus (Gravel, &c.) .	32	21	29	14	11	12	18	15	16	20	24
	6. Cystitis	8	9	9	16	12	14	21	7	11	28	21
	7. *Kidney Diseases, &c.* . .	38	40	48	60	71	83	67	92	108	91	106
	ORDER 6.											
	1. Ovarian Dropsy . . .	1	7	5	21	17	18	19	22	21	12	16
	2. *Uterus Diseases, &c.* . .	6	9	10	19	17	21	17	23	19	19	25
	ORDER 7.											
	1. Arthritis	12	18	1	1	2	–	–	–	–	–	2
	2. *Joint Diseases, &c.* . .	57	44	76	74	87	69	67	98	99	83	76
	ORDER 8.											
	1. Phlegmon	35	20	36	41	38	25	39	56	48	54	51
	2. Ulcer	11	11	7	13	18	14	20	10	15	15	8
	3. *Skin Diseases, &c.* . .	2	6	5	7	8	7	6	14	11	6	6
IV.	ORDER 1.											
	1. Still-born	739	747	739	1,062	1,017	974	903	856	859	1,046	1,007
	2. Infantile, Premature, &c.	1,326	1,314	1,280	1,359	1,446	1,227	1,259	1,293	1,338	1,378	1,451
	3. Cyanosis	9	28	27	19	25	20	19	26	26	12	17
	4. Spina Bifida . . .	1	3	4	13	5	4	6	3	6	8	6
	5. Other Malformations .	3	11	5	25	35	12	10	25	13	22	15
	6. Teething	380	353	294	341	321	255	256	251	315	220	275
	ORDER 2.											
	1. Paramenia	1	3	3	9	5	6	2	4	–	5	3
	2. Childbirth	196	179	203	229	212	143	155	165	160	196	193
	ORDER 3.											
	1. Old Age	1,199	1,132	1,168	1,101	1,107	1,137	1,391	1,421	1,361	1,358	1,341
	ORDER 4.											
	1. Atrophy and Debility .	127	98	71	144	148	148	118	113	137	133	124

for Twenty-five Years — Continued.

1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	CAUSES.
														ORDER 3.
—	1	—	—	—	1	1	4	1	5	4	2	2	2	1. Epistaxis.
16	13	12	17	16	23	25	24	29	11	29	35	57	61	2. Laryngitis.
241	229	259	272	287	328	395	433	428	397	548	690	760	843	3. Bronchitis.
100	93	75	90	81	90	103	103	86	82	80	90	98	101	4. Pleurisy.
1,651	1,736	1,718	1,858	2,295	2,097	2,386	2,940	2,247	1,972	2,171	2,647	3,076	2,967	5. Pneumo.
75	67	66	61	96	93	110	103	86	112	111	90	107	132	6. Asthma.
88	82	55	58	59	66	61	77	74	60	57	85	72	66	7. *Lung Dis.*
														ORDER 4.
81	54	90	93	109	123	134	161	143	132	151	175	218	246	1. Gastritis.
253	225	288	334	358	379	367	370	357	395	388	392	492	456	2. Enteritis.
67	72	86	69	100	102	129	155	123	126	164	226	270	284	3. Peritonitis.
15	18	13	11	15	12	8	11	21	17	10	25	20	26	4. Ascites.
24	25	14	20	27	14	24	18	22	18	23	19	21	21	5. Ulc. Intest.
29	45	39	34	36	35	41	50	43	43	51	44	46	58	6. Hernia.
73	64	89	97	94	81	73	85	80	81	71	81	67	66	7. Ileus.
4	9	3	3	4	3	5	11	8	11	7	8	13	23	8. Intus.
5	7	11	5	8	11	6	6	10	8	16	6	16	20	9 Str. Intest.
1	2	4	5	5	8	9	4	2	7	3	5	3	2	10. Fistula.
103	93	89	119	123	132	148	194	157	177	186	156	211	212	11. *Stom. Dis.*
—	—	—	—	—	1	—	1	1	1	1	—	1	2	12. *Pan Dis.*
39	37	33	38	56	57	62	51	55	65	77	73	97	97	13. Hepatitis.
34	45	34	41	42	48	47	49	57	44	39	51	54	55	14. Jaundice.
159	173	194	200	205	234	235	228	227	232	207	178	170	151	15. *Liver Dis.*
2	1	—	—	—	1	2	3	4	1	4	6	6	8	16. *Spleen Dis.*
														ORDER 5.
22	13	19	14	23	32	31	30	47	67	86	107	111	129	1. Nephritis.
6	8	3	5	5	4	9	5	9	3	8	4	12	8	2. Ischuria.
76	125	140	199	223	271	299	293	308	329	383	435	441	563	3. (Br: Dis.)
43	50	55	33	53	60	63	78	47	73	83	73	83	90	4. Diabetes.
29	30	20	23	11	30	21	15	18	27	17	16	13	21	5. Calculus.
20	18	19	21	13	32	38	27	41	52	78	81	100	91	6. Cystitis.
116	107	136	175	139	180	148	200	156	150	165	169	171	151	7. *Kidney Dis.*
														ORDER 6.
23	15	17	27	27	26	22	34	30	22	40	27	46	34	1. Ov. Drop.
23	14	22	13	21	24	36	35	39	48	40	52	36	34	2. *Uter. Dis.*
														ORDER 7.
—	5	2	3	3	—	1	4	3	—	4	2	3	4	1. Arthritis.
83	85	96	90	111	169	110	116	105	136	128	108	122	106	2. *Joint Dis.*
														ORDER 8.
42	66	60	70	82	73	56	69	57	40	66	66	48	86	1. Phlegmon.
14	11	10	13	14	11	22	18	15	20	14	11	18	18	2. Ulcer.
7	13	8	14	9	7	10	17	16	9	8	10	16	16	3. *Skin Dis.*
														IV.—ORDER 1.
1,050	1,094	1,019	1,390	1,283	1,246	1,469	1,374	1,274	1,254	1,261	1,261	1,297	1,466	1. Still-born.
627	665	737	741	876	774	720	721	586	519	578	492	597	612	2 Inf. Prem.
20	20	24	30	40	45	42	38	42	38	62	72	68	67	3. Cyanosis.
7	6	5	9	10	7	12	12	25	14	16	13	21	25	4. Spina Bif.
20	26	25	35	18	37	38	41	32	36	60	54	45	59	5 Malform.
234	[illegible]	308	260	367	348	286	323	273	259	226	151	184	193	6. Teething.
														ORDER 2.
3	3	7	4	4	4	6	4	2	5	5	8	4	5	1. Paramenia.
206	251	232	229	267	301	293	298	276	198	214	174	183	227	2. Childbirth.
														ORDER 3.
1,309	1,375	1,444	1,554	1,664	1,672	1,549	1,732	1,661	1,586	1,596	1,597	1,693	1,816	1. Old Age.
														ORDER 4.
367	333	335	519	574	691	640	655	631	573	610	574	686	770	1. Atr. & Deb.

TABLE XI.—*Causes of Death registered,*

Class.	CAUSES OF DEATH.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.
V.	ORDER 1.											
	(ACCIDENT OF NEGLIGENCE.)											
	1. Fractures and Contusions.	11	47	62	67	94	82	84	141	136	134	136
	2. Wounds.	–	–	–	–	–	–	–	–	–	–	–
	3. Burns and Scalds . .	73	90	100	104	109	135	102	137	97	96	75
	4. Poison	17	22	13	18	18	24	29	26	19	24	23
	5. Drowning (and Lost at Sea)	245	210	273	258	331	197	276	283	186	222	247
	6. Suffocation (and Strangulation)	9	16	17	30	23	20	19	30	23	28	18
	7. Otherwise	80	19	25	21	35	35	43	33	33	90	33
	8. "Casualty"	235	195	236	347	244	290	260	303	270	296	259
	ORDER 2.											
	1. Battle	–	–	–	–	8	298	244	634	61	1	–
	ORDER 3.											
	1. Homicide	27	18	18	19	19	18	24	10	27	11	15
	ORDER 4.											
	1. Suicide	97	82	83	113	92	92	67	65	78	73	75
	ORDER 5.											
	1. Execution	–	1	–	–	1	1	–	–	–	–	–
	Sudden, cause unascertained,	16	14	20	19	29	38	32	28	21	18	25
	Causes not specified . .	482	440	429	548	683	661	691	701	650	560	453

for Twenty-five Years — Concluded.

1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	CAUSES.
														V.—ORDER 1. (ACCIDENT.)
157	168	173	224	180	198	178	191	194	221	222	215	243	279	1. Fr. & Cont
-	-	-	-	-	-	-	-	-	-	-	-	-	-	2. Wounds.
70	82	89	101	93	88	84	171	98	83	79	89	80	101	3 Burns.
25	26	28	29	26	30	45	23	33	38	40	38	48	48	4. Poison.
221	283	306	346	299	432	436	330	475	260	299	461	251	276	5. Drowning.
[illegible]	30	27	25	39	37	35	54	45	40	59	67	74	78	6. Suffocation.
95	25	61	32	95	43	35	53	74	27	70	38	47	50	7. Otherwise.
253	309	328	392	415	493	464	415	361	351	280	300	391	409	8. Casualty.
														ORDER 2.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1. Battle.
														ORDER 3.
16	25	29	25	27	26	26	23	24	20	20	17	15	20	1. Homicide.
														ORDER 4.
88	92	91	122	117	117	115	159	119	163	126	161	133	165	1. Suicide.
														ORDER 5.
2	1	-	-	-	2	-	3	2	-	1	1	-	-	1. Execution
31	23	26	16	12	16	13	1	12	4	15	18	5	9	Suddenly.
[illegible]	1,412	1,324	1,274	1,445	1,286	1.125	1,016	987	906	822	757	745	656	Not stated.

TABLE XII. — *Deaths in each Town from Special Causes in 1881.*

COUNTIES AND TOWNS.	Population in 1880.	Small-pox.	Measles.	Scarlatina.	Diphtheria and Croup.	Cerebro-Sp. Meningitis.	Whooping Cough.	Typhoid Fever.	Erysipelas.	Metria (Puerperal Fever).	Childbirth.	Dysentery.	Diarrhœa.	Cholera Morbus.	Cholera Infantum.	Phthisis (Consumption).	Pneumonia.	Bronchitis.	Apoplexy.	Accident.	Homicide.	Suicide.
Berkshire County — Con.																						
Mount Washington,	205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Ashford,	203	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
New Marlborough,	1,876	-	-	-	2	-	-	2	-	-	-	-	-	-	-	8	2	-	-	2	-	-
North Adams,	10,191	1	11	8	5	1	3	9	-	1	1	4	2	1	14	30	23	2	4	10	-	1
Otis,	785	-	-	1	-	-	-	-	-	-	-	-	1	-	-	2	1	-	-	1	-	-
Peru,	403	-	1	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	1	-	-	-
Pittsfield,	13,364	-	6	10	5	4	4	7	4	-	2	1	5	-	14	38	20	6	5	13	-	2
Richmond,	1,124	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	4	-	-	2	-	-
Sandisfield,	1,107	-	-	-	1	-	-	1	-	-	-	-	-	-	-	2	3	-	-	2	-	-
Savoy,	715	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-
Sheffield,	2,204	-	-	-	-	1	-	4	-	-	-	-	-	-	1	5	-	-	3	8	-	-
Stockbridge,	2,357	-	-	-	-	-	-	2	-	-	-	-	-	-	1	5	3	-	-	1	-	-
Tyringham,	542	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Washington,	493	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	4	-	-
West Stockbridge,	1,923	-	-	3	-	-	-	-	-	-	-	1	-	-	-	2	3	-	1	2	-	-
Williamstown,	3,394	-	-	6	1	1	3	5	2	-	2	-	1	-	5	7	5	-	-	4	-	-
Windsor,	644	-	-	-	-	-	-	1	-	-	-	-	-	-	-	5	1	-	-	1	-	1
BRISTOL COUNTY,	139,040	2	9	46	147	14	25	95	18	14	18	53	38	3	204	430	191	78	77	71	1	13
Acushnet,	1,105	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-	-	1	1	-	-
Attleborough,	11,111	-	1	6	11	4	8	21	-	1	7	-	-	-	15	84	22	4	8	6	-	1
Berkley,	927	-	-	-	2	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Dartmouth,	8,430	-	-	-	-	-	1	2	-	-	-	2	-	-	2	5	5	-	1	1	-	2
Dighton,	1,791	-	-	-	-	-	1	-	1	-	-	-	-	-	1	1	3	1	1	-	-	-
Easton,	3,902	-	-	-	3	1	-	1	-	-	-	-	1	-	8	14	8	-	2	5	-	-
Fairhaven,	2,875	-	-	-	-	-	-	-	-	-	-	1	1	-	-	5	4	2	5	1	-	-
Fall River,	48,961	1	3	11	68	1	12	32	9	7	4	38	25	3	112	173	62	52	12	33	1	2
Freetown,	1,329	-	-	-	6	1	-	1	-	-	-	-	-	-	1	6	1	1	-	-	-	-
Mansfield,	2,765	-	1	-	-	-	-	-	1	-	1	-	-	-	1	7	9	-	8	1	-	-
New Bedford,	26,845	1	2	13	12	3	4	12	4	6	2	7	4	-	31	84	35	9	23	9	-	5
Norton,	1,732	-	-	-	-	-	-	1	-	-	-	1	-	-	1	3	2	-	1	2	-	2
Raynham,	1,681	-	1	1	-	-	-	-	-	-	1	-	-	-	1	4	4	-	-	2	-	-
Rehoboth,	1,891	-	-	-	1	-	-	-	1	-	-	1	-	-	-	4	-	-	-	1	-	-

TABLE XII. — *Deaths in each Town from Special Causes in 1881.*

COUNTIES AND TOWNS.	Population in 1880.	Small-pox.	Measles.	Scarlatina.	Diphtheria and Croup.	Cerebro-Sp. Meningitis.	Whooping Cough.	Typhoid Fever.	Erysipelas.	Metria (Puerperal Fever).	Childbirth.	Dysentery.	Diarrhœa.	Cholera Morbus.	Cholera Infantum.	Phthisis (Consumption).	Pneumonia.	Bronchitis.	Apoplexy.	Accident.	Homicide.	Suicide.
BARNSTABLE COUNTY,	31,897	-	6	11	18	3	1	16	6	1	2	-	3	-	9	94	41	7	12	15	-	1
Barnstable,	4,242	-	-	-	-	1	-	3	-	1	-	-	-	-	1	12	5	1	-	1	-	1
Brewster,	1,144	-	2	-	1	-	1	1	1	-	-	-	1	-	-	3	1	-	-	-	-	-
Chatham,	2,250	-	-	1	-	-	-	1	1	-	-	-	-	-	-	6	-	1	2	1	-	-
Dennis,	3,288	-	1	-	1	-	-	5	1	-	-	-	-	-	1	12	8	-	2	-	-	-
Eastham,	692	-	-	4	2	-	-	1	-	-	-	-	-	-	-	6	1	-	-	-	-	-
Falmouth,	2,422	-	-	2	4	-	-	1	-	-	-	-	1	-	2	4	4	-	-	2	-	-
Harwich,	3,265	-	-	4	3	-	-	3	-	-	1	-	-	-	-	7	3	-	-	4	-	-
Mashpee,	346	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
Orleans,	1,294	-	-	-	-	1	-	-	-	-	-	-	1	-	-	3	4	-	2	-	-	-
Provincetown,	4,346	-	1	-	1	-	-	-	-	-	-	-	-	-	3	11	4	4	2	2	-	-
Sandwich,	3,543	-	2	-	2	-	-	1	2	-	-	-	-	-	1	12	2	-	1	3	-	-
Truro,	1,017	-	-	-	1	-	-	-	-	-	-	-	-	-	-	3	1	-	2	-	-	-
Wellfleet,	1,875	-	-	-	-	-	-	-	-	-	1	-	-	-	-	7	3	-	1	-	-	-
Yarmouth,	2,173	-	-	-	3	1	-	-	1	-	-	-	-	-	1	8	2	1	-	2	-	-
BERKSHIRE COUNTY,	69,032	13	20	37	33	10	11	62	11	2	10	11	13	2	51	162	115	16	28	60	1	6
Adams,	5,591	11	-	1	1	2	-	8	1	1	1	1	4	-	9	11	4	4	2	2	-	2
Alford,	348	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Becket,	1,123	-	-	2	-	-	-	-	-	-	-	-	-	-	1	3	2	-	1	1	-	-
Cheshire,	1,537	1	-	-	7	-	-	-	1	-	1	-	-	-	1	-	1	-	3	-	-	-
Clarksburg,	724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Dalton,	2,052	-	-	-	-	-	-	4	-	-	1	1	-	-	-	5	5	-	1	-	-	-
Egremont,	875	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-
Florida,	459	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Great Barrington,	4,653	-	-	-	3	-	-	7	2	-	-	-	-	-	-	14	14	3	-	3	-	-
Hancock,	642	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Hinsdale,	1,595	-	-	-	-	-	-	-	-	-	-	1	-	-	2	2	7	-	3	3	-	-
Lanesborough,	1,266	-	-	2	-	-	-	1	-	-	-	-	-	-	-	2	6	1	1	2	-	-
Lee,	3,939	-	-	3	5	-	1	6	-	-	-	1	-	1	3	10	6	-	1	1	-	-
Lenox,	2,043	-	1	1	-	-	-	3	-	-	-	-	-	-	-	6	1	-	-	1	-	-
Monterey,	635	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-	-

TABLE XII. — *Deaths in each Town from Special Causes in 1881.*

COUNTIES AND TOWNS.	Population in 1880.	Small-pox.	Measles.	Scarlatina.	Diphtheria and Croup.	Cerebro-Sp. Meningitis.	Whooping Cough.	Typhoid Fever.	Erysipelas.	Metria (Puerperal Fever).	Childbirth.	Dysentery.	Diarrhœa.	Cholera Morbus.	Cholera Infantum.	Phthisis (Consumption).	Pneumonia.	Bronchitis.	Apoplexy.	Accident.	Homicide.	Suicide.
Berkshire County — Con.																						
Mount Washington,	205	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
New Ashford,	203	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
New Marlborough,	1,876	–	–	–	2	–	–	2	–	–	–	–	–	–	–	3	2	–	–	2	–	–
North Adams,	10,191	1	11	8	5	1	3	9	–	1	1	4	2	1	14	30	23	2	4	10	–	1
Otis,	785	–	–	1	–	–	–	–	–	–	–	–	1	–	–	2	1	–	–	1	–	–
Peru,	403	–	1	–	1	–	–	–	1	–	1	–	–	–	–	–	–	–	1	–	–	–
Pittsfield,	13,364	–	6	10	5	4	4	7	4	–	2	1	5	–	14	38	20	6	5	13	–	2
Richmond,	1,124	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	4	–	–	2	–	–
Sandisfield,	1,107	–	–	–	1	–	–	1	–	–	–	–	–	–	–	2	3	–	–	2	–	–
Savoy,	715	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	2	–	1	–	–	–
Sheffield,	2,204	–	–	–	–	1	–	4	–	–	–	–	–	–	1	5	–	–	3	3	–	–
Stockbridge,	2,357	–	–	–	–	–	–	2	–	–	–	–	–	–	1	5	3	–	–	1	–	–
Tyringham,	542	–	–	–	–	–	–	2	–	–	–	–	–	–	–	1	1	–	–	–	–	–
Washington,	493	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	4	–	–
West Stockbridge,	1,923	–	–	3	–	–	–	–	–	–	–	1	–	–	–	2	3	–	1	2	–	–
Williamstown,	3,394	–	–	6	1	1	3	5	2	–	2	–	1	–	5	7	5	–	–	4	–	–
Windsor,	644	–	–	–	–	–	–	1	–	–	–	–	–	–	–	5	1	–	–	1	–	1
BRISTOL COUNTY,	139,040	2	9	46	147	14	25	95	18	14	18	53	38	3	204	430	191	78	77	71	1	13
Acushnet,	1,105	–	–	1	–	–	–	1	–	–	–	–	–	–	–	1	–	–	1	1	–	–
Attleborough,	11,111	–	1	6	11	4	3	21	–	1	7	–	–	–	15	34	22	4	8	6	–	1
Berkley,	927	–	–	–	2	–	–	1	–	–	–	–	–	–	–	1	1	–	–	–	–	–
Dartmouth,	3,430	–	–	–	–	–	1	2	–	–	–	2	–	–	2	5	5	–	1	1	–	2
Dighton,	1,791	–	–	–	–	–	1	–	1	–	–	–	–	–	1	1	3	1	1	–	–	–
Easton,	3,902	–	–	–	8	1	–	1	–	–	–	–	1	–	3	14	8	–	2	5	–	–
Fairhaven,	2,875	–	–	–	–	–	–	–	–	–	–	1	1	–	–	5	4	2	5	1	–	–
Fall River,	48,961	1	3	11	68	1	12	32	9	7	4	38	25	3	112	173	62	52	12	33	1	2
Freetown,	1,329	–	–	–	6	1	–	1	–	–	–	–	–	–	1	6	1	1	–	–	–	–
Mansfield,	2,765	–	1	–	–	–	–	–	1	–	1	–	–	–	1	7	9	–	8	1	–	–
New Bedford,	26,845	1	2	13	12	3	4	12	4	6	2	7	4	–	31	84	35	9	23	9	–	5
Norton,	1,732	–	–	–	–	–	–	1	–	–	–	1	–	–	1	3	2	–	1	2	–	2
Raynham,	1,681	–	1	1	–	–	–	–	–	–	1	–	–	–	1	4	4	–	–	2	–	–
Rehoboth,	1,891	–	–	–	1	–	–	–	1	–	–	1	–	–	–	4	–	–	–	1	–	–

Seekonk,	1,227	-	-	-	2	-	2	-	-	-	-	-	-	-	2	2	1	-	1	-	-	-
Somerset,	2,006	-	-	2	4	-	-	1	-	-	-	-	1	-	-	5	1	-	-	-	-	-
Swanzey,	1,345	-	-	3	3	-	-	-	-	-	1	-	-	-	2	8	1	-	1	-	-	-
Taunton,	21,213	-	1	9	35	3	2	16	2	-	2	2	6	-	31	72	35	8	9	9	-	1
Westport,	2,894	-	-	-	-	1	-	6	-	-	-	1	-	-	1	6	2	1	4	-	-	-
DUKES AND NANTUCKET COUNTIES,	8,027	-	-	4	1	1	-	3	-	-	1	8	1	-	2	42	9	3	5	10	-	1
Chilmark,	494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Cottage City,	672	-	-	1	1	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Edgartown,	1,303	-	-	-	-	-	-	1	-	-	-	-	1	-	1	3	2	1	1	3	-	-
Gay Head,	161	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Gosnold,	152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Tisbury,	1,518	-	-	2	-	-	-	1	-	-	-	1	-	-	-	4	3	2	1	5	-	-
Nantucket,	3,727	-	-	1	-	1	-	1	-	-	1	7	-	-	1	30	4	-	3	-	-	1
ESSEX COUNTY,	244,535	1	7	11	267	21	22	148	35	15	32	45	61	10	252	873	353	57	110	172	1	26
Amesbury,	3,355	-	-	-	2	1	-	1	1	-	1	-	-	-	2	18	2	-	3	2	-	-
Andover,	5,169	-	-	-	-	1	-	2	-	-	-	-	-	-	-	17	5	2	1	3	-	2
Beverly,	8,456	-	-	1	12	-	2	2	3	-	1	-	1	-	5	32	6	-	2	2	-	1
Boxford,	824	-	-	-	-	1	-	-	-	-	-	-	-	-	-	3	-	-	1	1	-	-
Bradford,	2,643	-	-	-	2	-	-	-	-	-	-	2	-	-	1	10	2	-	1	-	-	-
Danvers,	6,598	-	-	-	16	-	-	5	3	-	4	2	2	-	2	28	12	2	4	4	-	-
Essex,	1,670	-	-	-	-	1	-	-	-	-	-	3	-	-	2	5	-	1	2	-	-	-
Georgetown,	2,231	-	-	-	-	-	-	-	1	-	-	-	-	-	1	6	3	-	-	1	-	1
Gloucester,	19,329	1	3	-	38	2	1	7	4	-	1	5	5	-	19	63	19	3	7	57	1	1
Groveland,	2,227	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	4	-	1	1	-	1
Hamilton,	935	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-
Haverhill,	18,472	-	1	-	11	2	-	6	4	1	2	4	4	1	24	56	29	2	5	7	-	2
Ipswich,	3,699	-	-	-	3	-	-	1	1	-	-	-	2	-	4	8	5	-	-	2	-	1
Lawrence,	39,151	-	1	1	30	5	7	49	5	3	8	7	9	6	66	159	53	13	6	21	-	2
Lynn,	38,274	-	1	7	62	4	8	25	2	3	5	6	6	1	30	158	66	2	18	13	-	3
Lynnfield,	686	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	1	1	1	-	-
Manchester,	1,640	-	-	-	-	-	-	2	-	-	-	-	1	-	2	4	2	-	3	2	-	-
Marblehead,	7,467	-	-	-	18	1	-	-	1	-	3	1	-	1	9	30	23	8	8	1	-	1
Merrimac,	2,237	-	-	-	1	-	-	2	-	-	-	-	1	-	-	11	2	-	1	2	-	-
Methuen,	4,392	-	-	-	2	1	-	11	-	-	-	1	1	-	3	18	8	-	1	4	-	1
Middleton,	1,000	-	-	-	2	-	-	-	-	1	-	-	-	-	1	8	5	2	-	-	-	-
Nahant,	808	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
Newbury,	1,566	-	-	-	1	-	-	-	-	-	-	-	-	-	-	3	1	-	1	4	-	-
Newburyport,	13,538	-	-	-	6	1	2	7	3	3	-	4	1	-	5	42	21	4	10	9	-	2
North Andover,	3,217	-	-	-	1	-	-	2	-	-	-	-	-	-	1	6	5	-	-	2	-	-

TABLE XII. — *Deaths in each Town from Special Causes in 1881.*

COUNTIES AND TOWNS.	Population in 1880.	Small-pox.	Measles.	Scarlatina.	Diphtheria and Croup.	Cerebro-Sp. Meningitis.	Whooping Cough.	Typhoid Fever.	Erysipelas.	Metria (Puerperal Fever).	Childbirth.	Dysentery.	Diarrhœa.	Cholera Morbus.	Cholera Infantum.	Phthisis (Consumption).	Pneumonia.	Bronchitis.	Apoplexy.	Accident.	Homicide.	Suicide.
Essex County — Con.																						
Peabody,	9,028	-	-	1	18	-	1	1	-	-	1	1	1	-	8	31	8	2	4	2	-	2
Rockport,	3,912	-	-	-	12	-	-	-	1	-	2	-	-	-	3	12	4	-	9	3	-	-
Rowley,	1,201	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	-	-	-	-	-
Salem,	27,563	-	-	-	18	-	4	19	5	3	1	4	24	1	56	108	45	14	17	17	-	3
Salisbury,	4,079	-	-	-	3	-	1	-	-	-	1	2	2	-	-	10	12	3	2	6	-	-
Saugus,	2,625	-	1	1	5	-	1	1	1	-	-	-	-	-	-	4	1	2	-	1	-	-
Swampscott,	2,500	-	-	-	-	-	-	2	-	-	2	1	1	-	3	8	1	-	2	1	-	1
Topsfield,	1,165	-	-	-	3	-	-	-	-	-	-	1	-	-	-	-	4	1	-	1	-	-
Wenham,	889	-	-	-	-	-	-	2	-	-	-	-	-	-	-	3	2	-	-	1	-	-
West Newbury,	1,989	-	-	-	-	-	-	1	-	1	-	-	-	-	-	5	1	-	-	1	-	2
FRANKLIN COUNTY,	36,001	-	2	-	25	3	1	22	2	3	2	4	5	1	17	111	52	4	10	30	-	3
Ashfield,	1,066	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	2	-	-
Bernardston,	934	-	-	-	-	-	-	1	-	-	-	-	-	-	-	5	-	-	-	1	-	-
Buckland,	1,739	-	-	-	-	-	-	1	-	-	-	-	2	1	1	7	1	1	-	2	-	-
Charlemont,	932	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1	-	-	-	-	-
Colrain,	1,777	-	-	-	2	-	-	1	-	2	-	-	-	-	-	6	6	-	-	3	-	1
Conway,	1,760	-	-	-	3	-	-	1	-	-	-	-	-	-	-	3	1	-	1	1	-	-
Deerfield,	3,543	-	-	-	2	-	-	3	-	-	-	-	-	-	5	20	4	1	2	2	-	-
Erving,	872	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Gill,	733	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Greenfield,	3,903	-	-	-	3	2	-	-	-	-	-	2	-	-	3	12	5	-	1	5	-	-
Hawley,	592	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	2	-	-	-	-	-
Heath,	560	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Leverett,	742	-	-	-	-	-	-	2	-	-	-	-	-	-	-	4	1	1	1	-	-	-
Leyden,	507	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	1	1	-	1	-	-
Monroe,	166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Montague,	4,875	-	1	-	5	1	1	5	1	-	-	-	3	-	7	15	4	-	-	3	-	-
New Salem,	849	-	-	-	1	-	-	1	-	-	-	1	-	-	-	3	4	-	1	-	-	-
Northfield,	1,603	-	1	-	2	-	-	2	-	-	-	-	-	-	-	6	3	-	1	2	-	-
Orange,	3,169	-	-	-	2	-	-	1	-	-	1	1	-	-	1	12	4	-	1	1	-	-
Rowe,	502	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-
Shelburne,	1,621	-	-	-	1	-	-	-	-	-	-	-	-	-	-	3	1	-	-	3	-	2

Shutesbury,	529	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	6	-	-	-	-	-
Sunderland,	755	-	-	-	-	-	-	1	-	1	-	-	-	-	-	3	1	-	-	1	-	-
Warwick,	718	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	1	3	-	-
Wendell,	465	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Whately,	1,074	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	-	-	-
HAMPDEN COUNTY,	104,142	18	-	24	72	19	6	110	15	12	17	18	24	7	138	354	197	36	34	75	6	12
Agawam,	2,216	-	-	1	-	-	-	8	-	-	-	1	-	2	2	6	3	-	-	2	1	1
Blandford,	979	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
Brimfield,	1,203	-	-	2	-	-	-	1	-	-	-	-	-	-	1	3	2	-	-	-	-	-
Chester,	1,473	-	-	-	-	-	-	-	-	-	1	1	-	-	1	2	5	-	-	2	-	-
Chicopee,	11,286	-	-	-	4	-	-	11	1	-	-	2	2	-	9	34	21	2	-	11	-	-
Granville,	1,205	-	-	-	-	-	-	1	-	-	-	-	-	-	2	2	2	1	2	-	-	-
Hampden,	958	-	-	-	-	-	-	-	1	-	-	1	-	-	2	7	1	-	-	-	-	-
Holland,	302	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
Holyoke,	21,915	15	-	2	22	9	1	39	3	6	4	3	14	-	42	102	47	8	1	23	-	2
Longmeadow,	1,401	-	-	4	-	-	-	1	-	-	-	-	-	-	1	7	3	-	1	-	2	1
Ludlow,	1,526	-	-	-	-	2	-	3	-	-	-	-	-	-	1	4	7	2	-	2	-	-
Monson,	3,75	-	-	1	4	1	-	-	-	1	-	-	-	-	4	13	7	-	2	1	-	-
(*State Primary School*),	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Montgomery,	303	-	-	-	2	-	-	1	-	-	-	-	-	-	-	2	3	-	-	1	-	-
Palmer,	5,504	-	-	-	1	-	-	6	-	-	2	2	-	-	4	19	7	-	2	6	-	-
Russell,	823	-	-	-	3	-	-	1	-	-	-	1	-	-	4	2	1	-	1	-	-	-
Southwick,	1,104	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2	-	1	1	2	-	1
Springfield,	33,340	-	-	12	26	6	3	27	5	5	4	2	5	8	45	106	63	18	20	11	-	7
Tolland,	452	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Wales,	1,030	-	-	-	2	-	-	-	-	-	1	-	1	1	-	1	2	-	-	1	-	-
Westfield,	7,587	3	-	-	4	-	2	6	-	-	4	-	-	-	9	26	11	1	1	6	1	-
West Springfield,	4,149	-	-	1	3	1	-	6	4	-	1	-	2	1	6	12	4	1	1	5	1	-
Wilbraham,	1,628	-	-	1	-	-	-	1	1	-	-	-	-	-	-	2	5	-	1	2	1	-
HAMPSHIRE COUNTY,	47,232	1	-	11	72	7	4	44	5	4	7	18	6	1	37	119	99	15	23	21	1	5
Amherst,	4,298	-	-	-	1	-	-	4	-	1	1	1	1	-	1	13	8	2	2	1	-	-
Belchertown,	2,346	-	-	-	11	-	-	1	-	-	-	1	-	-	-	11	8	-	-	2	-	-
Chesterfield,	769	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	2	1	-	1	-	1
Cummington,	881	-	-	-	-	-	-	3	-	-	-	1	-	-	-	1	6	-	-	3	-	-
Easthampton,	4,206	-	-	-	5	-	3	1	-	1	-	5	1	-	2	10	4	1	2	1	-	-
Enfield,	1,043	-	-	2	2	-	-	-	-	-	-	1	-	-	1	1	1	3	3	-	-	-
Goshen,	327	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granby,	753	-	-	-	-	-	-	-	1	-	-	1	-	-	-	3	-	-	2	-	-	-
Greenwich,	633	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	1	-	-	-	-

TABLE XII. — *Deaths in each Town from Special Causes in 1881.*

COUNTIES AND TOWNS.	Population in 1880.	Small-pox.	Measles.	Scarlatina.	Diphtheria and Croup.	Cerebro-Sp. Meningitis.	Whooping Cough.	Typhoid Fever.	Erysipelas.	Metria (Puerperal Fever).	Childbirth.	Dysentery.	Diarrhœa.	Cholera Morbus.	Cholera Infantum.	Phthisis (Consumption).	Pneumonia.	Bronchitis.	Apoplexy.	Accident.	Homicide.	Suicide.
Hampshire County — Con.																						
Hadley,	1,938	-	-	-	2	4	-	-	-	-	1	-	-	-	-	2	4	-	1	1	-	-
Hatfield,	1,495	-	-	-	-	-	-	-	-	-	1	2	1	-	-	4	2	-	-	-	-	-
Huntington,	1,236	-	-	5	2	-	1	1	1	-	-	-	-	1	1	4	3	-	-	1	-	-
Middlefield,	648	-	-	-	2	-	-	-	-	-	-	-	-	-	-	4	-	-	-	1	-	-
Northampton,	12,172	-	-	2	18	1	-	8	1	2	1	2	-	-	10	24	24	4	7	2	1	8
Pelham,	614	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	4	-	-	1	-	-
Plainfield,	457	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	2	1	-	-
Prescott,	460	-	-	-	2	-	-	1	-	-	-	-	-	-	-	3	-	1	2	1	-	-
South Hadley,	3,538	1	-	-	14	1	-	8	1	-	-	2	-	-	11	8	8	1	-	3	-	-
Southampton,	1,046	-	-	-	3	-	-	1	-	-	-	-	-	-	-	2	4	1	-	-	-	-
Ware,	4,817	-	-	2	1	1	-	13	-	-	2	2	-	-	11	17	13	-	-	2	-	1
Westhampton,	563	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	1	-	-	-	-	-
Williamsburg,	2,234	-	-	-	8	-	-	-	-	-	1	-	3	-	-	3	2	-	2	-	-	-
Worthington,	758	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	3	-	-	-	-	-
MIDDLESEX COUNTY,	317,830	2	37	48	416	27	45	151	41	21	28	57	44	13	378	1,059	522	146	113	183	1	23
Acton,	1,797	-	-	-	1	-	-	-	-	-	-	-	-	-	-	8	1	-	-	-	-	1
Arlington,	4,100	-	3	-	7	-	1	1	1	-	-	-	-	-	7	6	16	1	1	3	-	1
Ashby,	914	-	-	-	-	-	-	2	1	-	-	-	-	-	-	8	-	-	2	-	-	-
Ashland,	2,394	-	1	-	3	-	-	2	1	-	-	-	1	-	8	3	5	3	-	1	-	-
Ayer,	1,881	-	-	-	-	-	-	-	-	-	-	-	1	-	-	8	3	1	1	2	-	-
Bedford,	931	-	-	-	1	1	-	-	-	-	-	-	-	-	1	4	1	-	-	-	-	-
Belmont,	1,615	-	-	2	1	-	-	-	-	-	-	1	1	-	2	5	2	-	-	2	-	-
Billerica,	2,000	-	-	1	-	-	-	-	4	-	-	-	-	-	-	3	1	2	-	1	-	1
Boxborough,	819	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Burlington,	711	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-
Cambridge,	52,669	-	2	1	97	6	8	21	9	5	4	5	9	5	98	179	124	29	22	26	-	6
Carlisle,	478	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	1	-	-	-	-	-
Chelmsford,	2,553	-	-	-	-	-	1	-	-	-	-	-	1	-	1	6	3	-	-	1	-	-
Concord,	3,922	-	-	1	6	-	-	1	-	-	-	-	-	-	2	17	3	1	3	2	-	4
Dracut,	1,595	-	-	-	2	-	-	1	-	-	-	-	-	-	1	2	-	-	-	-	-	-
Dunstable,	453	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	1	1	-	-	-	-
Everett,	4,159	-	3	1	1	1	-	1	-	-	-	1	-	-	8	10	9	3	-	1	-	-

Framingham,	6,235		-		7	-	-	5	-	-	-	1	-	-	5	15	5	1	2	2	-	-
Groton,	1,862	-	-	-	-	-	-	3	-	-	1	-	-	-	3	2	1	-	1	-	-	-
Holliston,	3,098	-	-	-	-	-	-	2	-	-	1	1	-	-	1	18	6	1	4	-	-	-
Hopkinton,	4,601	-	1	-	3	-	-	3	-	-	1	-	-	-	5	15	7	-	1	1	-	-
Hudson,	3,739	-	-	2	3	-	2	2	-	-	-	-	-	-	7	13	6	-	1	3	-	-
Lexington,	2,460	-	2	-	-	-	6	2	-	-	-	-	-	-	-	8	2	-	-	1	-	1
Lincoln,	907	-	-	-	1	-	-	-	-	-	-	1	-	-	1	-	1	-	1	2	-	-
Littleton,	994	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	1	1	-	1
Lowell,	59,475	-	2	9	70	5	5	54	6	7	8	1	4	3	110	243	63	28	21	54	-	1
Malden,	12,017	-	4	-	20	-	3	5	1	-	-	3	-	-	8	41	17	5	9	8	-	1
Marlborough,	10,127	-	4	18	3	4	2	4	1	2	-	4	-	2	5	36	8	-	-	3	-	-
Maynard,	2,291	-	-	-	2	3	-	-	-	-	-	-	-	-	4	6	3	-	-	3	-	-
Medford,	7,573	-	-	4	4	-	1	5	1	-	-	-	1	-	6	13	11	2	3	7	-	-
Melrose,	4,560	-	-	-	1	-	1	-	1	-	3	-	-	-	3	14	7	4	3	-	-	-
Natick,	8,479	-	-	1	12	1	-	3	2	1	1	4	2	1	5	19	7	8	5	4	-	-
Newton,	16,995	-	5	1	34	3	3	6	2	1	1	9	4	1	8	40	23	10	5	6	-	1
North Reading,	900	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	4	-	-	-	-	-
Pepperell,	2,348	-	-	-	-	-	2	-	-	-	-	-	-	-	-	8	2	-	3	2	-	1
Reading,	3,181	-	-	-	-	-	-	-	-	1	-	1	1	-	1	7	8	2	2	3	-	-
Sherborn,	1,401	-	-	-	-	-	-	3	-	-	-	-	-	-	-	4	1	3	-	1	-	-
Shirley,	1,365	-	-	-	-	-	-	2	-	-	-	-	-	-	2	1	12	2	-	1	-	-
Somerville,	24,933	-	1	1	52	2	6	6	4	1	2	5	12	1	36	56	62	8	5	8	-	2
Stoneham,	4,890	1	-	1	23	-	-	3	-	-	-	2	-	-	6	22	4	2	4	1	-	1
Stow,	1,045	-	-	-	-	-	-	1	-	-	-	2	-	-	-	6	-	-	-	-	-	-
Sudbury,	1,178	-	-	-	2	-	-	-	-	-	-	-	-	-	-	7	1	-	-	-	-	-
Tewksbury,	2,179	-	-	-	-	1	1	1	-	-	-	-	1	-	1	4	8	-	-	3	-	-
(*State Almshouse*),	-	-	3	-	7	-	-	-	3	3	-	4	2	-	2	74	8	-	1	3	-	-
Townsend,	1,967	-	1	-	-	-	-	-	-	-	-	-	-	-	1	2	5	2	3	1	-	-
Tyngsborough,	631	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	-	1	-	-
Wakefield,	5,547	-	-	1	22	-	-	-	1	-	-	6	-	-	8	15	7	2	3	3	-	-
Waltham,	11,712	-	-	1	13	-	1	5	1	-	2	1	2	-	10	31	21	12	1	8	-	-
Watertown,	5,426	-	2	1	9	-	-	-	-	-	-	1	1	-	4	9	2	5	1	4	-	-
Wayland,	1,962	-	-	-	1	-	-	-	-	-	-	-	-	-	1	7	1	-	-	-	-	-
Westford,	2,147	-	-	-	-	-	1	-	1	-	-	1	-	-	1	8	4	1	-	1	-	-
Weston,	1,448	-	-	-	3	-	-	2	-	-	-	-	-	-	1	2	2	-	-	-	-	-
Wilmington,	933	1	-	-	-	-	-	-	1	-	-	-	-	-	-	8	2	-	-	-	-	1
Winchester,	3 802	-	2	2	1	-	1	2	-	-	2	-	1	-	1	14	4	3	-	2	-	-
Woburn,	10,931	-	1	-	4	-	-	1	-	-	1	2	-	-	12	37	9	4	4	7	1	-
NORFOLK COUNTY,	96,507	1	9	6	136	9	3	38	18	4	5	15	10	5	54	258	130	23	43	52	2	8
Bellingham,	1,223	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	1	-	1
Braintree,	3,855	-	1	-	5	1	-	2	-	-	-	1	-	-	1	14	9	1	3	1	-	-
Brookline,	8,057	-	4	1	12	-	-	7	3	-	1	-	-	-	4	13	6	1	3	7	-	-

TABLE XII. — *Deaths in each Town from Special Causes in 1881.*

COUNTIES AND TOWNS.	Population in 1880.	Small-pox.	Measles.	Scarlatina.	Diphtheria and Croup.	Cerebro-Sp. Meningitis.	Whooping Cough.	Typhoid Fever.	Erysipelas.	Metria (Puerperal Fever).	Childbirth.	Dysentery.	Diarrhœa.	Cholera Morbus.	Cholera Infantum.	Phthisis (Consumption).	Pneumonia.	Bronchitis.	Apoplexy.	Accident.	Homicide.	Suicide.
Norfolk County — Con.																						
Canton,	4,516	–	1	2	11	–	–	–	–	1	–	–	–	1	5	17	8	5	2	2	–	–
Cohasset,	2,182	–	–	–	3	1	–	2	–	–	–	–	–	–	–	8	3	1	–	2	–	–
Dedham,	6,233	–	–	–	11	3	–	7	1	–	–	2	–	–	5	16	12	1	1	4	1	1
Dover,	653	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2	–	1	–	–	–
Foxborough,	2,950	–	1	–	5	–	–	1	–	–	–	–	–	–	–	3	1	1	4	3	–	–
Franklin,	4,051	–	–	–	1	–	–	–	–	–	–	1	1	–	1	11	2	1	1	2	–	–
Holbrook,	2,130	–	–	–	5	–	–	–	–	–	–	–	1	–	1	6	2	–	–	2	–	–
Hyde Park,	7,088	1	–	1	10	1	1	7	1	–	1	1	1	1	11	16	14	3	2	6	–	1
Medfield,	1,371	–	–	–	–	–	1	–	–	–	–	–	–	–	–	3	6	1	1	2	–	–
Medway,	3,956	–	1	–	2	–	–	3	–	–	1	1	3	1	–	8	2	2	1	–	–	–
Milton,	3,206	–	–	–	1	–	–	2	1	1	1	–	–	–	2	7	7	–	3	–	–	–
Needham,	5,252	–	–	1	14	–	–	–	–	–	–	1	–	–	–	12	4	–	1	1	–	–
Norfolk,	930	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2	–	–	2	–	1
Norwood,	2,345	–	–	–	3	–	–	1	2	–	–	–	–	–	–	4	1	–	1	2	–	–
Quincy,	10,570	–	1	1	17	2	1	2	–	–	–	1	–	–	4	24	17	1	5	4	–	2
Randolph,	4,027	–	–	–	2	1	–	–	–	1	–	–	–	–	1	18	6	–	5	2	1	–
Sharon,	1,492	–	–	–	–	–	–	–	2	–	–	–	1	1	1	1	1	–	–	–	–	–
Stoughton,	4,875	–	–	–	7	–	–	–	1	1	–	–	–	1	2	22	4	2	3	3	–	1
Walpole,	2,494	–	–	–	7	–	–	–	–	–	–	1	1	–	2	6	3	–	–	2	–	–
Wellesley,	–	–	–	–	6	–	–	–	–	–	–	–	–	–	1	5	2	–	–	1	–	–
Weymouth,	10,570	–	–	–	12	–	–	1	1	–	–	4	1	–	11	37	12	3	6	3	–	1
Wrentham,	2,481	–	–	–	2	–	–	2	1	–	1	2	1	–	2	4	2	–	–	–	–	–
PLYMOUTH COUNTY,	74,018	–	8	8	145	5	2	37	14	8	10	16	9	3	49	182	94	20	31	39	–	4
Abington,	3,697	–	1	–	4	–	–	3	–	1	–	–	1	1	5	6	6	2	3	–	–	–
Bridgewater,	3,620	–	–	–	6	–	–	4	–	–	1	–	–	–	1	8	7	–	1	1	–	–
(*State Workhouse*),	–	–	–	–	–	–	–	–	3	–	–	–	1	–	–	2	–	–	–	–	–	–
Brockton,	13,608	–	–	1	71	–	–	17	6	1	3	4	–	–	13	44	19	4	2	7	–	–
Carver,	1,039	–	1	–	2	–	–	1	–	–	–	1	–	–	1	1	3	–	–	1	–	–
Duxbury,	2,196	–	–	–	1	–	1	2	–	1	–	–	–	–	2	8	2	–	4	1	–	1
East Bridgewater,	2,710	–	–	–	25	–	1	–	1	–	–	–	–	–	1	5	2	–	1	2	–	
Halifax,	542	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2	1	–	1	–	–	–
Hanover,	1,897	–	1	–	3	–	–	1	–	–	1	–	–	–	2	8	4	–	–	–	–	1

Hanson,	1,309	-	1	-	3	1	-	1	-	-	1	-	-	-	1	3	1	1	-	1	-	-
Hingham,	4,485	-	-	-	4	1	-	-	1	1	1	1	-	-	5	8	7	-	2	7	-	1
Hull,	388	-	-	-	-	-	-	-	-	-	-	3	1	-	-	1	-	-	-	2	-	-
Kingston,	1,524	-	-	1	-	-	-	-	-	-	-	-	2	-	1	-	2	1	2	-	-	-
Lakeville,	1,008	-	-	-	1	-	-	1	-	-	-	-	-	-	-	2	-	1	-	1	-	-
Marion,	958	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	-	-	-	-	-	-
Marshfield,	1,781	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2	3	-	1	-	-	1
Mattapoisett,	1,365	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1	3	-	1	-	-	-
Middleborough,	5,237	-	-	-	4	-	-	2	-	2	10	1	-	-	-	10	4	1	4	1	-	-
Pembroke,	1,405	-	1	-	-	-	-	-	-	-	-	1	-	-	1	5	3	-	-	1	-	-
Plymouth,	7,093	-	-	8	6	-	-	1	-	2	-	2	2	1	2	8	8	3	2	5	-	-
Plympton,	604	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Rochester,	1,043	-	-	-	-	-	-	-	1	-	-	-	-	-	1	2	-	-	1	1	-	-
Rockland,	4,553	-	-	1	6	-	-	-	-	-	-	-	1	-	-	14	8	3	-	1	-	-
Scituate,	2,466	-	2	-	2	-	-	1	-	-	-	1	1	-	1	9	8	1	1	-	-	-
South Abington,	3,024	-	1	1	8	-	-	1	1	-	-	1	-	1	7	10	1	-	2	-	-	-
South Scituate,	1,820	-	-	-	1	2	-	1	-	-	1	-	-	-	1	4	7	-	1	-	-	-
Wareham,	2,896	-	-	-	-	-	-	-	-	-	1	-	-	-	4	6	1	2	-	4	-	-
West Bridgewater,	1,665	-	-	-	2	1	-	-	1	-	-	-	-	-	-	7	3	1	2	3	-	-
SUFFOLK COUNTY,	387,927	7	107	41	815	24	77	221	59	21	72	97	206	17	478	1,571	782	378	152	331	7	41
Boston,	362,839	7	101	38	770	23	75	212	52	21	72	94	201	16	441	1,485	740	371	140	319	7	39
Chelsea,	21,782	-	6	3	42	-	2	9	7	-	-	3	5	1	28	79	36	7	10	8	-	1
Revere,	2,263	-	-	-	2	1	-	-	-	-	-	-	-	-	-	4	4	-	1	3	-	1
Winthrop,	1,043	-	-	-	1	-	-	-	-	-	-	-	-	-	9	3	2	-	1	1	-	-
WORCESTER COUNTY,	226,897	2	25	150	236	14	20	125	34	11	23	23	38	6	198	632	381	60	80	165	-	22
Ashburnham,	1,666	-	-	-	4	-	-	-	1	-	-	-	-	-	-	13	1	-	-	-	-	-
Athol,	4,307	-	2	2	9	-	-	-	-	1	1	-	1	-	1	8	11	1	7	6	-	-
Auburn,	1,317	-	-	1	1	-	1	1	-	-	-	1	2	-	1	7	2	-	-	8	-	-
Barre,	2,419	-	-	1	-	1	-	1	1	-	-	-	1	-	1	5	8	-	1	-	-	1
Berlin,	977	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	1	-	-
Blackstone,	4,907	-	-	-	4	-	1	-	-	-	-	1	-	-	-	9	4	-	1	2	-	-
Bolton,	903	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Boylston,	854	-	-	1	-	-	-	-	-	-	-	-	-	1	-	2	2	-	1	1	-	-
Brookfield,	2,820	-	1	2	2	1	-	1	-	-	-	-	-	-	8	6	5	-	2	6	-	-
Charlton,	1,960	-	-	-	2	-	-	1	-	-	-	-	-	-	-	8	4	1	-	4	-	-
Clinton,	8,029	-	-	-	9	-	-	8	1	-	1	-	1	1	19	24	10	3	3	4	-	1
Dana,	736	-	-	-	-	-	1	-	1	-	-	-	-	-	2	1	-	-	-	1	-	-
Douglas,	2,241	-	-	1	-	-	1	1	-	-	-	-	-	-	1	12	7	-	1	3	-	-
Dudley,	2,803	-	-	1	4	-	-	1	-	-	-	-	1	1	2	6	2	-	2	-	-	-

Table XII. — *Deaths in each Town from Special Causes in 1881.*

Counties and Towns.	Population in 1880.	Small-pox.	Measles.	Scarlatina.	Diphtheria and Croup.	Cerebro-Sp. Meningitis.	Whooping Cough.	Typhoid Fever.	Erysipelas.	Metria (Puerperal Fever).	Childbirth.	Dysentery.	Diarrhœa.	Cholera Morbus.	Cholera Infantum.	Phthisis (Consumption).	Pneumonia.	Bronchitis.	Apoplexy.	Accident.	Homicide.	Suicide.
Worcester County — Con.																						
Fitchburg,	12,429	–	2	4	12	–	–	4	1	1	2	–	–	–	16	40	21	3	5	10	–	–
Gardner,	4,988	–	–	1	12	2	–	1	–	–	2	1	–	–	2	16	3	–	2	4	–	1
Grafton,	4,030	–	1	7	8	–	–	6	1	–	1	1	–	–	2	5	8	1	4	3	–	1
Hardwick,	2,233	–	–	–	–	–	–	4	1	–	–	–	2	–	1	2	6	–	2	1	–	–
Harvard,	1,253	–	–	–	1	1	–	–	1	–	–	1	–	–	1	1	5	–	–	4	–	–
Holden,	2,499	–	–	–	1	–	–	8	–	–	–	–	–	–	1	4	2	–	–	6	–	1
Hubbardston,	1,386	–	–	–	–	–	–	1	1	–	–	–	–	–	–	6	5	–	–	–	–	–
Lancaster,	2,008	–	–	–	–	–	–	–	–	–	–	–	–	–	1	5	5	1	2	2	–	–
Leicester,	2,779	–	–	10	2	1	–	3	1	–	2	–	–	–	1	12	2	–	–	2	–	–
Leominster,	5,772	–	–	–	2	–	–	1	–	1	1	1	–	–	6	11	13	–	3	5	–	–
Lunenburg,	1,101	–	–	–	–	–	–	1	–	–	–	–	–	–	1	3	3	1	1	1	–	–
Mendon,	1,094	–	–	–	2	–	–	3	–	–	1	1	–	–	1	5	1	–	–	–	–	–
Milford,	9,810	–	–	–	–	–	3	4	1	–	1	–	2	–	4	38	8	2	3	4	–	1
Millbury,	4,741	–	–	9	–	–	–	2	–	1	–	–	–	–	7	11	1	3	2	1	–	1
New Braintree,	610	–	–	1	–	–	–	–	–	–	–	1	–	–	–	–	2	1	1	–	–	–
Northborough,	1,676	–	–	–	–	–	1	4	–	–	–	–	–	–	3	3	6	–	–	–	–	–
Northbridge,	4,053	–	–	–	14	–	–	1	–	–	1	–	–	1	4	13	11	–	–	4	–	–
North Brookfield,	4,459	–	–	13	8	–	–	2	–	–	1	1	1	–	2	12	2	4	1	4	–	1
Oakham,	869	–	–	–	–	–	–	–	2	–	–	–	–	–	–	3	2	–	–	–	–	–
Oxford,	2,604	–	–	3	1	1	–	1	1	–	1	1	–	–	2	7	3	–	1	1	–	1
Paxton,	592	–	1	–	–	–	–	–	–	–	–	–	–	–	–	3	2	–	–	–	–	–
Petersham,	1,109	–	–	–	–	–	–	–	2	–	–	2	1	–	1	2	2	–	1	–	–	–
Phillipston,	621	–	–	–	–	–	–	3	–	–	–	–	–	–	1	3	8	–	1	–	–	1
Princeton,	1,100	–	–	–	–	–	1	–	–	–	–	1	–	–	3	2	1	–	–	1	–	1
Royalston,	1,192	–	–	–	–	–	–	1	–	–	–	1	–	–	1	1	4	–	1	2	–	–
Rutland,	1,059	–	–	–	1	–	–	–	–	–	–	–	1	–	2	1	–	1	–	–	–	–
Shrewsbury,	1,500	–	–	1	2	–	–	1	–	–	–	–	–	–	1	6	10	–	–	1	–	1
Southborough,	2,142	–	–	1	–	1	–	–	–	–	–	–	–	–	2	2	1	–	–	4	–	–
Southbridge,	6,464	1	–	–	13	1	1	11	2	–	–	–	2	–	6	20	10	–	–	1	–	–
Spencer,	7,466	–	4	6	17	–	1	4	1	1	–	2	–	–	13	19	7	1	–	5	–	–
Sterling,	1,414	–	–	–	1	–	–	2	–	–	–	–	–	–	2	7	8	–	1	2	–	–
Sturbridge,	2,062	–	–	–	4	–	2	1	–	–	–	–	–	–	8	4	6	–	–	–	–	1
Sutton,	3,105	–	–	2	–	–	–	4	–	–	–	1	–	–	5	5	2	–	1	1	–	1
Templeton,	2,789	–	–	1	7	2	–	4	–	–	–	–	3	–	–	10	6	2	1	1	–	–
Upton,	2,023	–	–	–	–	–	1	1	–	–	–	1	–	–	–	8	–	–	1	–	–	2

Uxbridge, ...	3,111	-	-	-	-	-	-	-	1	-	-	-	-	-	1	6	2	-	1	1	-	-
Warren, ...	3,889	-	-	6	3	1	-	5	2	-	2	-	1	-	2	12	5	-	3	4	-	1
Webster, ...	5,696	-	1	5	37	-	-	4	1	-	-	-	1	-	9	16	10	1	2	6	-	1
Westborough, ...	5,214	-	1	20	1	-	-	10	-	-	1	-	2	-	1	15	4	1	2	1	-	-
West Boylston, ...	2,994	-	1	-	1	-	-	2	-	-	-	-	-	-	2	3	8	2	1	5	-	-
West Brookfield, ...	1,917	-	-	1	-	1	-	-	-	-	1	-	-	-	-	2	2	-	-	-	-	-
Westminster, ...	1,652	-	-	1	4	-	-	-	-	-	-	-	-	-	-	6	3	-	2	-	-	1
Winchendon, ...	3,722	-	-	2	5	1	-	1	-	-	-	1	-	-	1	6	7	1	2	3	-	1
Worcester, ...	58,291	1	11	47	47	-	6	21	10	6	3	4	16	2	57	176	116	30	15	44	-	2

Table XIII. — OCCUPATIONS.

Distinguishing by Occupations (statistically classified) the Number, with their Average and Aggregate Ages, of Persons in the State (in two geographical divisions) whose Occupations were specified, and whose Deaths were registered, during the year 1881; also in the State (entire) during the period of Thirty-eight Years and Eight Months, ending with December 31, 1881. [This table includes only persons over twenty years of age.]

OCCUPATIONS.	NINE EASTERN COUNTIES. 1881.			FIVE WESTERN COUNTIES. 1881.			WHOLE STATE. Thirty-eight Yrs. and Eight Months. From May 1, 1843, to Dec. 31, 1881.		
	Number of Persons.	Ages.		Number of Persons.	Ages.		Number of Persons.	Ages.	
		Aggregate.	Average.		Aggregate.	Average.		Aggregate.	Average.
All Classes and Occupations,	5,991	314,353	52·47	2,371	129,052	54·60	195,626	10,072,310	51·49
I. Cultivators of the Earth,	685	46,420	67·76	703	47,033	66·90	40,730	2,680,363	65·81
II. Active Mechanics Abroad,	434	24,354	56·11	118	6,961	58·99	14,809	793,865	53·61
III. Active Mechanics in Shops,	811	40,309	49·69	298	15,590	53·66	23,389	1,131,613	48·40
IV. Inactive Mechanics in Shops,	843	41,463	49·18	283	12,795	45·21	23,723	1,066,838	44·97
V. Laborers — No Special Trades,	1,201	62,698	52·20	391	20,882	53·41	37,568	1,822,272	48·51
VI. Factors laboring Abroad,	302	13,777	45·62	81	3,530	43·58	9,165	350,924	38·29
VII. Employed on the Ocean,	386	20,846	54·01	1	72	72·00	11,149	532,904	47·80
VIII. Merchants, Financiers, Agents, Etc.	851	42,563	50·01	192	10,186	53·05	22,602	1,113,880	49·28
IX. Professional Men,	223	12,205	54·73	80	4,284	53·55	7,069	364,833	51·61
X. Females,	255	9,718	38·11	224	7,719	34·46	5,422	214,818	39·62

I. CULTIVATORS OF THE EARTH,	685	46,420	67·76	703	47,033	66·90	40,780	2,680,868	65·81
II. ACTIVE MECHANICS ABROAD,	434	24,854	56·11	118	6,961	58·99	14,809	793,865	53·61
Brickmakers,	4	241	60·25	–	–	–	133	6,444	48·45
Carpenters and joiners,	236	13,514	57·26	73	4,323	59·22	8,306	451,764	54·39
Calkers and gravers,	9	573	63·67	–	–	–	245	14,431	58·90
Masons,	78	4,171	53·47	29	1,706	58·83	2,410	125,495	52·07
Millwrights,	2	103	51·00	2	133	66·50	170	10,114	59·49
Riggers,	5	314	62·80	–	–	–	210	11,373	54·16
Ship-carpenters,	38	2,617	68·87	–	–	–	1,149	69,339	60·34
Slaters,	5	174	34·80	1	52	52·00	128	5,235	40·90
Stone-cutters,	48	2,110	43·96	9	486	54·00	1,406	65,807	46·80
Tanners,	9	537	59·67	4	261	65·25	652	33,863	51·94
III. ACTIVE MECHANICS IN SHOPS,	811	40,309	49·69	298	15,590	53·66	23,389	1,131,613	48·40
Bakers,	28	1,411	50·36	3	150	50·00	651	31,522	48·42
Blacksmiths,	89	4,976	55·91	38	2,299	60·50	3,185	172,580	54·19
Brewers,	2	90	45·00	1	81	81·00	53	2,406	45·40
Cabinet-makers,	33	1,455	44·10	6	365	60·83	1,080	53,845	49·86
Calico-printers,	–	–	–	–	–	–	11	594	54·00
Cardmakers,	–	–	–	1	59	59·00	44	2,161	49·11
Carriage makers and trimmers,	9	609	67·67	4	266	66·50	378	18,930	50·08
Chairmakers,	–	–	–	6	409	68·16	183	8,330	45·52
Clothiers,	4	201	50·00	–	–	–	107	6,114	57·14
Confectioners,	11	538	48·91	–	–	–	128	5,766	45·05
Cooks,	14	657	46·93	2	83	41·50	195	7,949	40·76
Coopers,	28	1,861	66·46	1	55	55·00	1,146	68,423	59·71
Coppersmiths,	–	–	–	–	–	–	139	6,342	45·63

Table XIII. — Continued.

OCCUPATIONS.	NINE EASTERN COUNTIES. 1881.			FIVE WESTERN COUNTIES. 1881.			WHOLE STATE. Thirty-eight Yrs. and Eight Months. From May 1, 1843, to Dec. 31, 1881.		
	Number of Persons.	Ages.		Number of Persons.	Ages.		Number of Persons.	Ages.	
		Aggregate.	Average.		Aggregate.	Average.		Aggregate.	Average.
Curriers,	43	2,021	47·00	3	198	66·00	688	31,004	45·06
Cutlers,	4	178	44·50	3	180	60·00	179	7,261	40·56
Distillers,	1	40	40·00	–	–	–	35	2,046	58·46
Dyers,	9	561	62·33	6	241	40·17	215	10,076	46·87
Founders,	20	1,045	52·25	5	214	42·80	558	24,579	44·05
Furnace-men	2	86	43·00	1	57	57·00	158	7,164	45·34
Glassblowers or glassmakers,	8	464	58·00	–	–	–	174	7,015	40·32
Gunsmiths,	1	64	64·00	–	–	–	284	14,118	49·71
Hatters,	18	835	46·39	1	74	74·00	473	25,688	54·31
Leather-dressers,	21	1,019	48·52	–	–	–	276	13,011	47·14
Machinists,	124	5,236	42·23	62	2,983	48·11	3,025	128,923	42·61
Millers,	8	575	71·87	7	388	55·43	343	19,873	57·94
Musical-instrument makers,	–	–	–	–	–	–	54	2,633	48·76
Nailmakers,	8	397	49·62	–	–	–	227	10,051	44·28
Pail and tub makers,	–	–	–	–	–	–	6	241	40·17
Painters,	129	5,891	45·67	36	1,750	48·61	2,893	131,129	45·33
Paper-makers,	4	257	64·25	8	326	40·75	401	19,645	48·99
Pianoforte-makers,	6	338	56·33	–	–	–	161	7,478	46·45
Plumbers,	22	785	75·68	2	74	37·00	230	8,209	35·69
Potters,	4	266	66·50	1	50	50·00	56	3,202	57·18
Pump and block makers,	2	138	69·00	–	–	–	114	6,533	57·31
Reedmakers,	–	–	–	–	–	–	16	730	45·63
Ropemakers,	13	925	71·15	–	–	–	323	19,077	59·06
Tallow-chandlers,	1	68	68·00	–	–	–	95	5,352	56·34

Tinsmiths,	20	943	47·15	7	354	50·57	534	22,518	42·17
Trunkmakers,	3	94	31·33	–	–	–	71	2,874	40·48
Upholsterers,	15	586	39·07	2	76	38·00	210	8,427	40·13
Weavers,	31	1,483	47·84	15	669	44·60	741	33,211	44·82
Wheelwrights,	22	1,403	63·77	10	636	63·60	654	38,402	58·72
Wood-turners,	2	70	35·00	–	–	–	113	5,728	50·69
Mechanics (trade not specified),	52	2,743	52·75	67	3,553	53·03	2,802	130,453	46·56
IV. INACTIVE MECHANICS IN SHOPS,	843	41,463	49·18	283	12,795	45·21	23,723	1,066,838	44·97
Barbers,	42	1,589	37·83	3	131	43·67	625	24,583	39·33
Basket-makers,	2	89	44·50	1	75	75·00	91	5,570	61·21
Bookbinders,	7	281	40·14	1	59	59·00	210	8,864	42·21
Brushmakers,	2	82	41·00	–	–	–	70	3,105	44·36
Carvers,	4	193	48·25	1	26	26·00	122	4,438	36·38
Cigar-makers,	10	341	34·10	5	228	45·60	247	9,777	39·58
Clock and watch makers,	–	–	–	1	39	39·00	158	8,172	51·72
Combmakers,	2	134	67·00	8	472	59·00	193	10,149	52·59
Engravers,	7	207	29·57	1	71	71·00	166	6,585	39·67
Glass-cutters,	3	156	52·00	–	–	–	110	4,888	44·44
Harness-makers,	14	600	42·86	4	208	52·00	568	28,244	49·72
Jewellers,	28	1,054	37·64	7	306	43·71	626	25,671	41·01
Operatives,	206	9,182	44·57	124	4,988	40·23	3,339	135,978	40·72
Printers,	51	2,234	43·80	11	492	44·73	1,043	41,623	39·91
Sailmakers,	4	204	51·00	–	–	–	279	15,095	54·10
Shoe-cutters,	35	1,889	53·97	5	204	40·80	625	28,895	46·23
Shoemakers,	357	19,281	54·00	88	4,322	49·11	12,881	589,279	45·75
Silversmiths or goldsmiths,	7	395	56·43	2	53	26·50	123	6,003	48·80
Tailors,	59	3,335	56·53	12	686	57·17	1,860	91,508	49·20
Tobacconists,	–	–	–	–	–	–	53	2,669	50·36
Whipmakers,	–	–	–	5	208	41·60	127	5,662	44·58
Wool-sorters,	3	217	72·33	4	227	56·75	207	10,080	48·70

TABLE XIII. — Continued.

OCCUPATIONS.	NINE EASTERN COUNTIES. 1881.			FIVE WESTERN COUNTIES. 1881.			WHOLE STATE. Thirty-eight Yrs. and Eight Months. From May 1, 1843, to Dec. 31, 1881.		
	Number of Persons.	AGES.		Number of Persons.	AGES.		Number of Persons.	AGES.	
		Aggregate.	Average.		Aggregate.	Average.		Aggregate.	Average.
V. LABORERS — *No Special Trades*,	1,201	62,698	52·20	391	20,882	53·41	37,568	1,822,272	48·51
Laborers,	1,154	60,540	52·46	388	20,772	53·54	36,596	1,778,970	48·61
Servants,	21	824	39·24	2	52	26·00	537	21,017	39·14
Stevedores,	3	114	38·00	-	-	-	100	5,281	52·81
Watchmen,	23	1,220	53·44	1	58	58·00	310	16,048	51·77
Workmen in powder-mills,	-	-	-	-	-	-	25	956	38·24
VI. FACTORS LABORING ABROAD, ETC.,	302	13,777	45·62	81	3,530	43·58	9,165	350,924	38·29
Baggage-masters,	3	83	27·67	-	-	-	57	2,053	36·02
Brakemen,	18	510	28·33	15	400	26·67	390	10,487	26·88
Butchers,	28	1,398	49·92	8	383	47·87	771	38,916	50·47
Chimney-sweepers,	-	-	-	-	-	-	4	138	34·50
Drivers,	27	1,138	42·15	2	53	26·50	530	21,170	39·94
Drovers,	-	-	-	-	-	-	26	1,349	51·88
Engineers and firemen,	49	2,194	44·78	18	684	38·00	871	34,803	39·96
Expressmen,	20	934	46·70	4	202	50·50	359	15,511	43·21
Ferrymen,	-	-	-	-	-	-	10	533	53·30
Lighthouse keepers,	-	-	-	-	-	-	18	1,130	62·78
Peddlers,	21	1,076	51·24	14	845	60·35	625	29,654	47·45
Sextons,	7	418	59·71	2	125	62·50	126	7,463	59·23
Soldiers,	4	228	57·00	-	-	-	2,909	82,843	28·48

Stablers,	29	1,503	51·83	5	169	33·80	491	21,457	43·70
Teamsters,	92	4,020	43·70	13	669	51·46	1,913	79,768	41·70
Weighers and gaugers,	1	59	59·00	–	–	–	36	2,120	58·89
Wharfingers,	3	216	72·00	–	–	–	29	1,529	52·72
VII. EMPLOYED ON THE OCEAN,	386	20,846	54·01	1	72	72·00	11,149	532,904	47·80
Fishermen,	66	2,934	44·45	–	–	–	738	32,030	43·40
Marines,	1	27	27·00	–	–	–	9	394	43·78
Naval officers,	4	234	58·50	–	–	–	78	4,043	51·83
Pilots,	6	365	60·83	–	–	–	104	6,337	60·93
Seamen,	309	17,286	55·94	1	72	72·00	10,220	490,100	47·95
VIII. MERCHANTS, FINANCIERS, AGENTS, ETC.	851	42,563	50·01	192	10,186	53·05	22,602	1,113,880	49·28
Agents,	33	1,801	54·58	7	384	54·86	578	28,432	49·19
Bankers,	4	232	58·00	–	–	–	78	4,603	59·08
Bank-officers,	4	250	62·50	1	72	72·00	207	11,532	55·71
Boarding-house keepers,	3	199	66·33	1	71	71·00	111	5,512	49·65
Booksellers,	–	–	–	–	–	–	89	4,708	52·90
Brokers,	16	768	48·00	–	–	–	295	14,955	50·70
Clerks and book-keepers,	232	8,224	35·45	41	1,546	37·71	5,229	188,889	36·12
Druggists and apothecaries,	21	1,017	48·43	6	331	55·15	389	16,716	42·97
Gentlemen,	40	2,817	70·43	12	878	73·17	1,781	122,147	68·58
Grocers,	47	2,411	51·30	4	217	54·25	825	39,632	48·00
Innkeepers,	16	886	55·37	11	652	59·27	623	31,607	50·73
Manufacturers,	65	4,033	62·05	27	1,768	65·48	1,886	101,631	53·89
Merchants,	157	9,689	61·71	49	2,702	55·14	5,328	295,984	55·55
News dealers or carriers,	2	90	45·00	–	–	–	53	2,338	44·11
Railroad agents or conductors,	17	595	35·00	4	151	37·75	444	18,076	40·71
Saloon and restaurant keepers,	42	1,383	32·93	15	603	40·20	569	23,139	40·66

Table XIII. — Concluded.

OCCUPATIONS.	NINE EASTERN COUNTIES. 1881.			FIVE WESTERN COUNTIES. 1881.			WHOLE STATE. Thirty-eight Yrs. and Eight Months. From May 1, 1843, to Dec. 31, 1881.		
	Number of Persons.	Ages.		Number of Persons.	Ages.		Number of Persons.	Ages.	
		Aggregate.	Average.		Aggregate.	Average.		Aggregate.	Average.
Stove-dealers,	–	–	–	–	–	–	22	1,003	45·59
Telegraphers,	9	259	28·78	1	25	25·00	38	1,198	31·53
Traders,	143	7,909	55·31	13	786	60·46	4,057	201,778	49·73
IX. Professional Men,	223	12,205	54·73	80	4,284	53·55	7,069	364,833	51·61
Architects,	3	107	35·67	3	141	47·00	50	2,347	46·94
Artists,	8	437	54·62	–	–	–	255	11,463	44·95
Civil engineers,	1	80	80·00	2	119	59·50	164	7,220	44·02
Clergymen,	45	2,895	64·33	20	1,224	61·20	1,346	80,316	59·67
Comedians,	2	139	69·50	–	–	–	53	2,174	41·02
Dentists,	7	403	57·57	1	81	81·00	158	6,994	44·27
Editors and reporters,	6	265	44·17	1	31	31·00	155	7,160	46·19
Judges and justices,	2	143	71·50	4	281	70·25	36	2,383	66·19
Lawyers,	22	1,206	54·82	3	158	52·67	883	49,638	56·22
Musicians,	6	230	38·33	3	95	31·67	355	14,961	42·14
Photographers,	6	263	43·83	–	–	–	38	1,646	43·32
Physicians,	48	2,809	58·52	25	1,367	54·68	1,546	86,589	56·01
Professors,	1	85	85·00	2	128	64·00	59	3,473	58·86
Public officers,	15	813	54·20	4	244	61·00	557	31,041	55·73
Sheriffs, constables, and policemen,	18	961	53·39	3	125	41·67	284	15,148	53·34
Students,	10	229	22·90	3	65	21·67	401	9,404	23·45
Surveyors,	4	246	61·50	–	–	–	111	5,889	53·05
Teachers,	19	894	47·05	6	225	37·50	618	26,987	43·67

X. FEMALES,	255	9,718	38·11	224	7,719	34·46	5,422	214,818	39·62
Domestics,	78	3,188	40·87	32	1,493	46·66	1,516	68,556	45·22
Dressmakers,	21	870	41·43	18	745	41·39	434	18,646	42·97
Milliners,	6	279	46·50	6	315	52·50	191	7,739	40·52
Nurses,	9	616	68·44	5	314	62·80	183	11,402	62·31
Operatives,	86	2,479	28·83	128	3,402	26·59	1,470	43,074	29·30
Seamstresses,	11	530	48·18	8	355	44·37	403	18,944	47·01
Shoe-binders,	5	165	33·00	2	88	44·00	69	2,756	39·93
Straw-workers,	1	25	25·00	1	34	34·00	93	3,285	35·32
Tailoresses,	6	371	61·83	6	413	68·83	307	15,550	50·65
Teachers,	32	1,195	37·34	17	538	31·65	745	24,576	32·99
Telegraphers,	-	-	-	1	22	22·00	11	290	26·36

TABLE XIV. — GENERAL ABSTRACT FOR THE SEVENTEEN YEARS, 1865-81.

Exhibiting the Number of Births, Marriages, and Deaths, registered in the several Counties and Towns of Massachusetts for the Seventeen Years, 1865-81, distinguishing the Sex of Children born and of Persons who died in each Town, and the Average Age of those deceased in each County, during the period specified.

THE STATE AND COUNTIES.	BIRTHS.				MARRIAGES.	DEATHS.				Average Ages for 17 Years, 1865-81.
	Persons.	SEX.			Couples.	Persons.	SEX.			
		Males.	Fem.	Unk			Males.	Fem.	Unk	
MASSACHUSETTS, .	682,093	350,082	331,211	800	247,393	514,768	255.965	258,242	561	30·34
BARNSTABLE, .	11,095	5,739	5,328	28	4,984	9,365	4,775	4,539	51	41·38
BERKSHIRE, .	27,046	13,928	13,079	39	8,739	18,074	9,041	8,973	60	34 71
BRISTOL, . .	50,353	25,905	24,363	85	18,679	39,647	19,703	19,901	43	30·69
DUKES, . .	977	501	467	9	566	1,193	651	539	3	48·84
ESSEX, . .	88,369	45,510	42,786	73	34,830	69,573	34,480	35,011	82	30·65
FRANKLIN, . .	11,050	5,719	5,308	23	4,708	9,330	4,553	4,748	29	40 93
HAMPDEN, . .	38,173	19,452	18,666	55	14,617	28,484	14,142	14,307	35	27·73
HAMPSHIRE, .	16,829	8,687	8,125	17	6,511	13,325	6,444	6,858	23	36·37
MIDDLESEX, .	114,993	59,160	55,621	212	39,772	84,975	41,550	43,366	59	29·49
NANTUCKET, .	987	525	459	3	578	1,760	834	924	2	52·14
NORFOLK, . .	34,214	17,541	16,625	48	10,703	23,488	11,679	11,791	18	33·39
PLYMOUTH, .	24,701	12,860	11,805	36	9,628	20,055	9,994	10,013	48	39 46
SUFFOLK, . .	174,951	89,015	85,911	25	63,350	134,034	67,524	66,475	35	25·11
WORCESTER, .	88,355	45,540	42,668	147	29,728	61,465	30,595	30,797	73	31·94

TABLE XIV.—*General Abstract for Seventeen Years, 1865–81*—Con.

COUNTIES AND TOWNS.	BIRTHS.				MARRIAGES.	DEATHS.			
	Persons.	SEX.			Couples.	Persons.	SEX.		
		Males.	Fem.	Unk.			Males.	Fem.	Unk.
BARNSTABLE COUNTY,	11,095	5,739	5,328	28	4,984	9,365	4,775	4,539	51
Barnstable,	1,135	530	594	11	668	1,130	539	587	4
Brewster,	402	218	184	-	184	364	178	185	1
Chatham,	832	422	410	-	861	698	354	343	1
Dennis,	1,185	609	576	-	571	975	499	473	3
Eastham,	189	108	81	-	81	202	110	92	-
Falmouth,	597	307	289	1	285	717	373	343	1
Harwich,	1,204	637	565	2	622	810	417	373	20
*Mashpee,**	110	58	52	-	32	90	40	50	-
Orleans,	394	191	203	-	234	519	259	260	-
Provincetown,	1,896	993	901	2	735	1,186	649	534	3
Sandwich,	1,295	681	614	-	486	1,022	549	471	2
Truro,	457	231	226	-	152	356	185	171	-
Wellfleet,	689	352	325	12	300	607	302	296	9
Yarmouth,	710	402	308	-	278	689	321	361	7
BERKSHIRE COUNTY,	27,046	13,928	13,079	39	8,739	18,074	9,041	8,973	60
Adams,	5,353	2,782	2,564	7	1,816	3,256	1,667	1,586	3
Alford,	141	66	75	-	45	130	60	70	-
Becket,	389	202	184	3	182	302	186	164	2
Cheshire,	633	324	308	1	201	387	199	185	3
Clarksburg,	237	122	115	-	44	132	74	58	-
Dalton,	679	333	346	-	199	455	220	232	3
Egremont,	225	109	115	1	126	212	117	94	1
Florida,	448	224	221	3	64	267	166	97	4
Great Barrington,	1,620	832	787	1	612	1,187	547	638	2
Hancock,	214	114	100	-	57	161	79	82	-
Hinsdale,	838	408	430	-	278	512	252	260	-
Lanesborough,	693	354	335	4	152	339	178	159	2
Lee,	1,677	846	830	1	568	1,330	656	674	-
Lenox,	939	501	438	-	161	434	219	212	3
Monterey,	196	87	108	1	93	186	88	98	-
Mount Washington,	44	20	24	-	24	45	26	19	-
New Ashford,	64	33	31	-	17	28	18	10	-
New Marlborough,	800	429	371	-	186	471	241	230	-
North Adams,†	995	509	485	1	313	580	281	297	2
Otis,	201	124	77	-	130	224	116	108	-
Peru,	124	65	59	-	46	129	57	71	1
Pittsfield,	5,221	2,696	2,523	2	1,706	3,463	1,723	1,723	17
Richmond,	385	174	209	2	71	206	108	97	1
Sandisfield,	331	165	166	-	170	287	143	143	1
Savoy,	268	137	131	-	118	206	94	112	-
Sheffield,	928	518	408	2	326	711	349	361	1
Stockbridge,	600	322	276	2	277	496	262	233	1
Tyringham,	254	126	128	-	79	175	82	92	1
Washington,	138	69	69	-	45	128	61	67	-
West Stockbridge,	891	457	433	1	217	556	283	271	2
Williamstown,	1,329	686	636	7	372	913	454	449	10
Windsor,	191	94	97	-	94	166	85	81	-
BRISTOL COUNTY,	50,353	25,905	24,363	85	18,679	39,647	19,703	19,901	43
Acushnet,	329	177	152	-	149	290	138	151	1
Attleborough,	4,516	2,335	2,170	11	1,158	2,440	1,207	1,231	2
Berkley,	169	76	93	-	106	204	99	104	1
Dartmouth,	1,187	605	582	-	422	1,015	519	496	-
Dighton,	710	349	353	8	288	524	226	295	3
Easton,	1,638	888	750	-	871	989	503	485	1
Fairhaven,	696	364	332	-	334	816	375	436	5
Fall River,	18,632	9,544	9,055	33	6,553	14,741	7,412	7,327	2
Freetown,	376	193	180	3	165	362	191	166	5
Mansfield,	949	470	479	-	283	787	368	378	1
New Bedford,	8,697	4,366	4,325	6	4,532	8,017	3,914	4,091	12
Norton,	474	248	225	1	175	409	190	219	-

* Twelve years only. † Four years only.

TABLE XIV.—*General Abstract for Seventeen Years, 1865–81*—Con.

COUNTIES AND TOWNS.	BIRTHS.				MARRIAGES.	DEATHS.			
	Persons.	SEX.			Couples.	Persons.	SEX.		
		Males.	Fem.	Unk.			Males.	Fem.	Unk.
Bristol Co. — Con.									
Raynham,	599	308	291	-	201	426	227	199	-
Rehoboth,	535	280	255	-	242	501	235	266	-
Seekonk,	309	171	136	2	100	379	159	220	-
Somerset,	963	505	458	-	224	627	326	299	2
Swanzey,	425	230	195	-	172	409	211	198	-
Taunton,	8,141	4,272	3,853	16	2,855	6,013	3,016	2,989	8
Westport,	1,008	524	479	5	349	748	392	356	-
DUKES COUNTY,	977	501	467	9	566	1,193	651	539	3
Chilmark,	140	67	70	3	77	109	60	48	1
Cottage City,*	22	13	9	-	14	26	14	12	-
Edgartown,	400	198	199	3	248	499	248	251	-
Gay Head,†	58	36	21	1	17	53	29	22	2
Gosnold,	24	8	16	-	16	27	18	9	-
Tisbury,	333	179	152	2	194	479	282	197	-
ESSEX COUNTY,	88,369	40,510	42,786	73	34,830	69,573	34,480	35,011	82
Amesbury,	2,197	1,107	1,081	9	680	1,446	709	732	5
Andover,	1,721	880	841	-	611	1,477	715	761	1
Beverly,	2,627	1,363	1,263	1	1,064	2,011	963	1,048	-
Boxford,	254	124	130	-	108	220	106	114	-
Bradford,	732	368	363	1	232	586	273	312	1
Danvers,	2,309	1,190	1,113	6	836	1,970	998	964	8
Essex,	481	239	237	5	196	465	230	234	1
Georgetown,	572	300	272	-	249	502	244	258	-
Gloucester,	8,943	4,600	4,334	9	2,916	6,596	3,975	2,614	7
Groveland,	754	364	390	-	231	559	277	279	3
Hamilton,	225	110	115	-	116	204	109	93	2
Haverhill,	5,963	3,079	2,881	3	2,945	4,129	1,969	2,148	12
Ipswich,	1,097	563	533	1	520	1,183	587	595	1
Lawrence,	15,518	7,998	7,514	6	6,447	11,227	5,364	5,854	9
Lynn,	12,569	6,466	6,090	13	5,666	9,907	4,751	5,147	9
Lynnfield,	236	121	115	-	103	202	102	100	-
Manchester,	571	313	258	-	207	491	230	261	-
Marblehead,	3,430	1,796	1,634	-	1,170	2,778	1,425	1,353	-
Merrimac,‡	252	118	134	-	95	202	109	93	-
Methuen,	1,333	675	658	-	511	1,026	507	518	1
Middleton,	307	156	151	-	127	267	119	148	-
Nahant,	253	125	128	-	40	125	69	56	-
Newbury,	522	271	250	1	167	390	174	216	-
Newburyport,	5,248	2,798	2,446	4	2,247	4,462	2,144	2,314	4
North Andover,	1,198	622	575	1	333	766	387	377	2
Peabody,	3,936	1,978	1,958	-	878	2,377	1,147	1,230	-
Rockport,	1,918	974	941	3	722	1,323	688	633	2
Rowley,	374	192	181	1	163	352	183	169	-
Salem,	8,458	4,352	4,105	1	3,673	8,863	4,241	4,612	10
Salisbury,	1,642	827	814	1	605	1,253	591	662	-
Saugus,	693	350	336	7	268	601	297	303	1
Swampscott,	774	417	357	-	221	521	267	252	2
Topsfield,	371	203	168	-	153	308	150	158	-
Wenham,	299	142	157	-	122	246	107	139	-
West Newbury,	592	329	263	-	208	538	273	264	1
FRANKLIN COUNTY,	11,050	5,719	5,308	23	4,708	9,330	4,553	4,748	29
Ashfield,	305	169	135	1	112	284	134	150	-
Bernardston,	304	154	150	-	166	262	134	127	1
Buckland,	799	397	401	1	244	567	294	273	-
Charlemont,	223	120	103	-	153	264	127	136	1
Colrain,	496	251	245	-	273	414	196	218	-
Conway,	535	286	248	1	210	485	234	251	-

* Two years only.

† Twelve years.

‡ Five years.

Table XIV.—*General Abstract for Seventeen Years, 1865–81*—Con.

COUNTIES AND TOWNS.	BIRTHS.				MARRIAGES.	DEATHS.			
	Persons.	SEX.			Couples.	Persons.	SEX.		
		Males.	Fem.	Unk.			Males.	Fem.	Unk.
Franklin Co. — Con.									
Deerfield, ...	1,416	738	670	8	345	946	463	477	6
Erving, ...	166	88	78	–	86	181	105	75	1
Gill, ...	113	62	51	–	62	148	77	70	1
Greenfield, ...	1,356	697	656	3	702	1,014	466	546	2
Hawley, ...	201	108	92	1	61	155	74	79	2
Heath, ...	173	87	86	–	84	121	51	69	1
Leverett, ...	202	105	97	–	110	224	110	113	1
Leyden, ...	167	71	96	–	67	123	57	65	1
Monroe, ...	58	31	27	–	81	42	21	21	–
Montague, ...	1,439	742	696	1	457	963	503	460	–
New Salem, ...	288	162	125	1	136	286	140	146	–
Northfield, ...	478	240	235	3	201	490	249	239	2
Orange, ...	640	332	308	–	391	684	333	345	6
Rowe, ...	138	79	59	–	63	141	63	78	–
Shelburne, ...	435	227	207	1	211	464	219	242	3
Shutesbury, ...	161	78	82	1	98	185	83	102	–
Sunderland, ...	254	132	122	–	83	244	102	142	–
Warwick, ...	225	123	102	–	125	234	112	121	1
Wendell, ...	126	57	69	–	101	143	78	65	–
Whately, ...	352	183	168	1	136	266	128	138	–
HAMPDEN COUNTY, . .	38,173	19,452	18,666	55	14,617	28,484	14,142	14,307	35
Agawam, ...	938	464	471	3	235	593	305	285	3
Blandford, ...	346	166	179	1	121	300	145	155	–
Brimfield, ...	372	173	195	4	133	348	163	185	–
Chester, ...	454	234	220	–	154	306	165	141	–
Chicopee, ...	4,392	2,210	2,181	1	1,734	3,501	1,715	1,786	–
Granville, ...	392	195	195	2	152	317	152	164	1
Hampden,*	62	35	27	–	21	47	20	27	–
Holland, ...	106	56	48	2	31	97	43	53	1
Holyoke, ...	7,712	3,998	3,712	2	3,128	5,844	2,879	2,964	1
Longmeadow, ...	507	269	238	–	170	423	195	228	–
Ludlow, ...	475	244	229	2	183	367	183	181	3
Monson, ...	1,041	535	503	3	352	825	415	409	1
(*St. Primary School*),	178	88	90	–	–	493	297	196	–
Montgomery, . . .	117	61	56	–	37	101	56	45	–
Palmer, ...	1,953	961	990	2	897	1,233	616	616	1
Russell, ...	285	150	134	1	104	215	114	99	2
Southwick, ...	327	162	165	–	157	289	149	137	3
Springfield, ...	12,853	6,521	6,322	–	5,060	9,144	4,490	4,644	10
Tolland, ...	160	92	65	3	55	108	60	44	4
Wales, ...	281	154	127	–	140	220	104	116	–
Westfield, ...	2,968	1,551	1,404	13	1,186	2,178	1,089	1,085	4
West Springfield, .	1,526	745	776	5	316	993	495	498	–
Wilbraham, . . .	728	388	339	1	251	542	292	249	1
HAMPSHIRE COUNTY,	16,829	8,687	8,125	17	6,511	13,325	6,444	6,858	23
Amherst, ...	1,325	684	641	–	513	1,040	499	541	–
Belchertown, . . .	810	403	407	–	323	668	327	337	4
Chesterfield, ...	252	135	117	–	127	229	118	111	–
Cummington, . . .	285	146	139	–	130	258	114	144	–
Easthampton, . . .	1,434	741	692	1	491	1,100	508	587	5
Enfield, ...	363	201	162	–	192	308	132	176	–
Goshen, ...	110	56	53	1	42	104	53	51	–
Granby, ...	264	132	132	–	86	219	101	118	–
Greenwich, ...	154	81	73	–	76	221	110	109	2
Hadley, ...	855	421	433	1	230	632	313	319	–
Hatfield, ...	855	431	424	–	139	449	210	239	–
Huntington, ...	368	179	189	–	174	358	176	181	1
Middlefield, ...	230	112	118	–	65	176	87	88	1
Northampton, . . .	4,627	2,460	2,157	10	1,929	3,353	1,693	1,658	2
Pelham, ...	118	55	63	–	110	166	86	80	–
Plainfield, ...	136	64	71	1	67	131	62	69	–

* Four years.

TABLE XIV.—*General Abstract for Seventeen Years, 1865–81*—Con.

COUNTIES AND TOWNS.	BIRTHS.				MARRIAGES.	DEATHS.			
	Persons.	SEX.			Couples.	Persons.	SEX.		
		Males.	Fem.	Unk.			Males.	Fem.	Unk.
Hampshire Co.—Con.									
Prescott,	137	64	73	-	82	137	65	72	-
Southampton,	383	198	182	3	173	343	157	186	-
South Hadley,	1,196	633	563	-	395	870	432	434	4
Ware,	1,635	829	806	-	707	1,542	751	788	3
Westhampton,	241	123	118	-	59	197	93	104	-
Williamsburg,	792	393	399	-	282	588	260	327	1
Worthington,	259	146	113	-	119	236	97	139	-
MIDDLESEX COUNTY,	114,993	59,160	55,621	212	39,772	84,975	41,550	43,366	59
Acton,	546	291	254	1	208	492	239	253	-
Arlington,	1,642	823	819	-	450	1,165	594	571	-
Ashby,	221	115	105	1	128	309	145	163	1
Ashland,	922	499	420	3	329	648	328	319	1
Ayer,*	565	290	275	-	168	349	194	155	-
Bedford,	268	152	114	2	85	249	127	121	1
Belmont,	736	369	367	-	167	432	213	216	3
Billerica,	547	272	275	-	207	534	259	275	-
Boxborough,	99	46	53	-	46	79	31	48	-
Burlington,	170	96	74	-	72	162	82	79	1
Cambridge,	21,621	10,983	10,597	41	6,609	14,724	7,203	7,508	13
Carlisle,	156	85	71	-	72	182	80	102	-
Chelmsford,	831	422	409	-	250	637	289	348	-
Concord,	1,018	553	453	12	438	720	386	334	-
Dracut,	513	254	259	-	141	430	197	232	1
Dunstable,	85	42	43	-	48	125	50	75	-
Everett,†	1,028	527	501	-	268	676	312	362	2
Framingham,	2,052	1,052	1,000	-	801	1,447	683	764	-
Groton,	861	427	433	1	385	684	340	344	-
Holliston,	1,135	585	548	2	461	911	439	472	-
Hopkinton,	1,857	926	929	2	489	1,161	573	587	1
Hudson,‡	1,444	746	697	1	472	897	433	464	-
Lexington,	632	337	295	-	274	727	331	396	-
Lincoln,	278	146	132	-	59	178	95	83	-
Littleton,	262	142	119	1	99	275	130	143	2
Lowell,	19,813	10,280	9,456	77	10,208	16,845	7,855	8,988	2
Malden,	4,008	2,057	1,950	1	1,249	2,658	1,303	1,352	3
Marlborough,	5,206	2,696	2,503	7	1,250	2,475	1,233	1,240	2
Maynard,*	612	324	288	-	155	298	164	134	-
Medford,	2,019	1,047	965	7	827	1,675	794	881	-
Melrose,	1,385	713	671	1	469	963	447	513	3
Natick,	3,658	1,830	1,814	14	988	2,041	1,012	1,029	-
Newton,	5,342	2,721	2,620	1	1,686	3,182	1,532	1,647	3
North Reading,	321	159	162	-	186	277	127	150	-
Pepperell,	706	365	340	1	283	638	329	308	1
Reading,	830	411	419	-	373	760	369	391	-
Sherborn,	360	191	166	3	128	349	147	198	4
Shirley,	363	181	182	-	178	385	181	204	-
Somerville,	9,581	4,940	4,635	6	1,995	6,105	3,001	3,101	3
Stoneham,	1,673	855	818	-	602	1,233	583	650	-
Stow,	445	225	220	-	170	327	167	159	1
Sudbury,	496	252	244	-	132	385	171	214	-
Tewksbury,	310	157	153	-	133	329	167	162	-
(*State Almshouse*),	1,089	554	535	-	-	4,574	2,636	1,938	-
Townsend,	688	372	312	4	297	656	323	332	1
Tyngsborough,	134	72	62	-	81	212	106	106	-
Wakefield,	1,932	1,002	927	3	787	1,433	726	705	2
Waltham,	4,456	2,349	2,102	5	1,702	2,762	1,325	1,432	5
Watertown,	2,035	1,061	967	7	869	1,322	621	700	1
Wayland,	630	323	307	-	191	424	217	207	-
Westford,	733	368	359	6	231	542	262	278	2
Weston,	360	185	175	-	135	302	149	153	-
Wilmington,	282	140	141	1	125	267	135	132	-
Winchester,	1,261	655	606	-	414	694	343	351	-
Woburn,	4,776	2,495	2,280	1	1,252	2,669	1,372	1,297	-

* Eleven years. † Twelve years. ‡ Sixteen years.

TABLE XIV.—*General Abstract for Seventeen Years, 1865–81*—Con.

COUNTIES AND TOWNS.	BIRTHS.				MARRIAGES.	DEATHS.			
	Persons.	SEX.			Couples.	Persons.	SEX.		
		Males.	Fem.	Unk.			Males.	Fem.	Unk.
NANTUCKET COUNTY,	987	525	459	3	578	1,760	834	924	2
NORFOLK COUNTY, .	32,214	17,541	16,625	48	10,703	23,488	11,679	11,791	18
Bellingham, ...	438	211	226	1	161	344	171	171	2
Braintree, . . .	1,466	728	734	4	464	1,124	565	559	–
Brookline, . . .	3,468	1,777	1,683	8	1,003	1,822	889	933	–
Canton, ...	1,427	736	689	2	465	1,024	481	542	1
Cohasset, . . .	816	415	401	–	287	635	314	321	–
Dedham, . . .	2,834	1,472	1,358	4	836	1,801	899	901	1
Dover, ...	158	87	71	–	76	173	85	88	–
Foxborough, . .	740	361	376	3	374	714	326	387	1
Franklin, . . .	1,015	516	499	–	363	794	381	409	4
Holbrook,* . . .	480	235	245	–	157	293	143	150	–
Hyde Park,† . .	2,385	1,185	1,197	3	616	1,356	658	697	1
Medfield, . . .	327	171	156	–	151	322	136	186	–
Medway, . . .	1,334	669	664	1	446	1,058	512	546	–
Milton, ...	1,100	587	512	1	380	739	375	364	–
Needham, . . .	1,691	852	837	2	480	1,057	537	520	–
Norfolk,† . . .	307	152	155	–	76	182	89	93	–
Norwood,* . . .	509	285	224	–	125	318	170	147	1
Quincy, . . .	3,601	1,852	1,743	6	1,118	2,564	1,370	1,194	–
Randolph, . . .	1,959	1,009	949	1	566	1,454	719	731	4
Sharon, ...	409	199	207	3	174	437	219	218	–
Stoughton, . . .	1,992	1,080	912	–	608	1,392	695	695	2
Walpole, . . .	763	398	363	2	269	636	320	315	1
Wellesley,‡ . . .	34	22	12	–	15	34	14	20	–
Weymouth, ...	4,243	2,195	2,044	4	1,205	2,528	1,277	1,251	–
Wrentham, ...	718	347	368	3	288	687	334	353	–
PLYMOUTH COUNTY,	24,701	12,860	11,805	36	9,628	20,055	9,994	10,013	48
Abington, . . .	2,828	1,471	1,357	–	949	1,637	827	800	10
Bridgewater, . .	1,199	654	542	3	461	852	440	410	2
(*State Workhouse*), .	517	270	247	–	–	1,025	608	416	1
Brockton, . . .	4,070	2,095	1,970	5	1,661	2,801	1,396	1,392	13
Carver, ...	349	187	162	–	147	284	152	132	–
Duxbury, . . .	659	353	303	3	288	643	329	310	4
East Bridgewater, .	839	420	419	–	400	821	432	388	1
Halifax, . . .	176	86	90	–	82	173	72	100	1
Hanover, . . .	620	306	314	–	250	529	263	262	4
Hanson, . . .	400	200	200	–	174	326	168	158	–
Hingham, . . .	1,562	829	726	7	567	1,366	652	712	2
Hull, ...	82	41	38	3	22	110	74	36	–
Kingston, . . .	428	217	210	1	196	440	196	244	–
Lakeville, . . .	321	150	171	–	130	279	130	149	–
Marion, ...	283	134	149	–	731	275	134	141	–
Marshfield, . . .	460	237	219	4	211	483	218	262	3
Mattapoisett, . .	312	150	161	1	205	420	206	213	1
Middleborough, . .	1,490	778	712	–	687	1,254	597	656	1
Pembroke, . . .	439	230	209	–	203	411	196	213	2
Plymouth, . . .	2,698	1,377	1,316	5	1,031	2,064	994	1,070	–
Plympton, . . .	213	111	102	–	124	241	120	120	1
Rochester, . . .	339	168	171	–	151	289	140	149	–
Rockland,§ . . .	742	423	319	–	227	490	255	234	1
Scituate, . . .	845	455	389	1	303	745	382	363	–
South Abington,‖ . .	410	237	173	–	145	278	143	135	–
South Scituate, . .	518	273	242	3	249	525	240	284	1
Wareham, . . .	1,384	743	641	–	462	847	424	423	–
West Bridgewater, .	518	265	253	–	172	447	206	241	–
SUFFOLK COUNTY, .	174,951	89,015	85,911	25	63,350	134,034	67,524	66,475	35
Boston, ...	165,787	84,474	81,299	14	59,971	127,560	64,297	63,247	16
Chelsea, . . .	8,384	4,157	4,220	7	3,199	5,995	2,992	2,987	16
Revere, ...	540	265	272	3	106	327	162	163	2
Winthrop, . . .	240	119	120	1	74	152	73	78	1

* Ten years. † Twelve years. ‡ One year. § Eight years. ‖ Seven years.

TABLE XIV.—*General Abstract for Seventeen Years, 1865–81*—Con.

COUNTIES AND TOWNS.	BIRTHS.				MARRIAGES.	DEATHS.			
	Persons.	SEX.			Couples.	Persons.	SEX.		
		Males.	Fem.	Unk.			Males.	Fem.	Unk.
WORCESTER COUNTY,	88,355	45,540	42,668	147	29,728	61,465	30,595	30,797	73
Ashburnham,	707	362	343	2	321	628	332	296	-
Athol,	1,107	605	501	1	669	1,049	515	534	-
Auburn,	370	188	182	-	140	264	135	129	-
Barre,	723	384	339	-	335	767	371	395	1
Berlin,	349	181	168	-	144	277	125	150	2
Blackstone,	2,192	1,141	1,046	5	722	1,259	643	613	3
Bolton,	299	139	160	-	119	322	152	170	-
Boylston,	266	153	113	-	104	238	121	117	-
Brookfield,	980	467	513	-	350	711	349	361	1
Charlton,	462	269	193	-	229	475	219	254	2
Clinton,	3,119	1,651	1,463	5	1,077	1,762	856	903	3
Dana,	192	98	94	-	124	200	96	103	1
Douglas,	1,279	662	617	-	342	744	363	379	2
Dudley,	1,310	652	658	-	191	847	416	429	2
Fitchburg,	4,667	2,343	2,323	1	1,868	3,338	1,657	1,681	-
Gardner,	1,596	858	738	-	535	964	459	505	-
Grafton,	1,531	793	729	9	547	1,042	499	541	2
Hardwick,	828	442	386	-	301	418	199	219	-
Harvard,	288	133	155	-	116	415	176	239	-
Holden,	803	394	405	4	314	595	299	296	-
Hubbardston,	375	205	170	-	196	431	212	216	3
Lancaster,	416	203	212	1	228	469	231	238	-
Leicester,	1,091	556	535	-	318	830	435	395	-
Leominster,	1,853	930	916	7	459	1,323	635	688	-
Lunenburg,	262	148	114	-	139	358	177	181	-
Mendon,	466	250	216	-	118	329	154	174	1
Milford,	4,564	2,343	2,219	2	1,257	3,229	1,628	1,600	1
Millbury,	2,339	1,187	1,151	1	695	1,428	735	691	2
New Braintree,	151	88	60	3	67	156	79	76	1
Northborough,	548	271	277	-	198	429	209	220	-
Northbridge,	1,692	887	805	-	507	1,055	533	522	-
North Brookfield,	1,854	955	899	-	554	1,162	603	556	3
Oakham,	257	129	128	-	98	276	134	141	1
Oxford,	976	494	482	-	318	798	392	405	1
Paxton,	133	64	69	-	68	197	98	99	-
Petersham,	308	165	143	-	160	366	187	178	1
Phillipston,	177	92	84	1	101	188	87	101	-
Princeton,	288	140	148	-	131	360	166	194	-
Royalston,	314	167	142	5	190	412	183	229	-
Rutland,	355	182	173	-	124	291	141	150	-
Shrewsbury,	590	318	271	1	181	497	257	240	-
Southborough,	712	364	348	-	247	508	244	264	-
Southbridge,	2,945	1,519	1,426	-	979	1,771	831	937	3
Spencer,	3,595	1,804	1,785	6	627	1,780	902	871	7
Sterling,	429	212	214	3	184	454	205	245	4
Sturbridge,	578	292	284	2	285	570	292	278	-
Sutton,	1,253	670	567	16	453	787	407	376	4
Templeton,	995	542	451	2	397	760	369	391	-
Upton,	693	340	353	-	248	511	249	262	-
Uxbridge,	1,141	578	561	2	403	758	372	385	1
Warren,	1,387	743	644	-	450	797	394	403	-
Webster,	2,818	1,463	1,348	7	1,066	1,536	779	755	2
Westborough,	1,815	937	877	1	514	1,176	577	599	-
West Boylston,	1,452	729	723	-	492	823	417	406	-
West Brookfield,	695	366	329	-	233	501	257	242	2
Westminster,	479	235	242	2	234	514	237	277	-
Winchendon,	1,267	663	588	16	547	1,045	533	505	7
Worcester,	24,024	12,394	11,588	42	7,714	16,275	8,272	7,993	10

TABLE XV.—BIRTHS.—SEVENTEEN YEARS, 1865–81.

Distinguishing by Counties, by Months, and by Sex, the Registered Number of Children BORN ALIVE *during the Seventeen Years, 1865–81; also, for the entire State, the Percentage of the Numbers in each Month (distinguishing Sex) to the Total Number.*

Years and Months.	SEX.	Percentage.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
17 Years.	Totals, .	100·00	682,092	11,095	27,045	50,353	1,964	88,369	11,050	38,173	16,829	122,754	40,256	24,701	161,148	88,355
	Males, .	51·32	350,082	5,739	13,928	25,905	1,026	45,510	5,719	19,452	8,687	63,089	20,587	12,860	82,040	45,540
	Fem., .	48·56	331,210	5,328	13,078	24,363	926	42,786	5,308	18,666	8,125	59,443	19,618	11,805	79,096	42,668
	Unk., .	·12	800	28	39	85	12	73	23	55	17	222	51	36	12	147
Jan.	Totals, .	7·63	52,053	781	1,996	3,759	141	6,642	746	2,863	1,287	9,085	2,953	1,863	13,084	6,853
	Males,	3·91	26,707	370	1,011	1,995	74	3,425	411	1,425	670	4,695	1,486	925	6,621	3,599
	Fem., .	3·70	25,279	411	982	1,757	65	3,215	334	1,432	614	4,366	1,464	936	6,463	3,240
	Unk., .	·01	67	–	3	7	2	2	1	6	3	24	3	2	–	14
Feb.	Totals, .	7·30	49,789	679	1,934	3,710	139	6,396	745	2,666	1,153	8,877	2,933	1,745	12,366	6,446
	Males, .	3·76	25,655	344	1,012	1,911	65	3,301	389	1,349	628	4,614	1,500	891	6,229	3,422
	Fem., .	3·53	24,081	334	917	1,795	73	3,090	356	1,314	523	4,245	1,429	853	6,137	3,015
	Unk., .	·01	53	1	5	4	1	5	–	3	2	18	4	1	–	9
Mar.	Totals, .	8·17	55,725	753	2,222	4,027	142	7,315	911	3,082	1,431	9,960	3,264	2,056	13,391	7,171
	Males, .	4·22	28,782	386	1,160	2,081	86	3,833	470	1,553	716	5,075	1,663	1,069	6,932	3,758
	Fem., .	3·94	26,884	367	1,059	1,941	56	3,480	441	1,521	713	4,869	1,599	983	6,458	3,397
	Unk., .	·01	59	–	3	5	–	2	–	8	2	16	2	4	1	16

Table XV. — Concluded.

Months.	SEX.	Percentage.	State.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
April.	Totals, .	7·61	51,879	726	2,225	3,924	156	6,617	868	2,902	1,319	9,147	3,039	1,970	12,056	6,930
	Males, .	3·89	26,564	381	1,107	1,990	80	3,432	450	1,431	673	4,659	1,583	1,022	6,205	3,551
	Fem., .	3·70	25,270	345	1,116	1,932	75	3,182	417	1,470	645	4,469	1,454	944	5,850	3,371
	Unk., .	·01	45	–	2	2	1	3	1	1	1	19	2	4	1	8
May.	Totals, .	7·89	53,794	701	2,220	3,875	173	6,896	953	3,070	1,338	9,562	3,132	1,921	12,559	7,394
	Males, .	4·03	27,495	396	1,141	1,999	90	3,554	493	1,545	688	4,880	1,620	1,039	6,350	3,700
	Fem., .	3·85	26,242	303	1,076	1,874	82	3,336	458	1,518	650	4,665	1,510	881	6,209	3,680
	Unk., .	·01	57	2	3	2	1	6	2	7	–	17	2	1	–	14
June.	Totals, .	7·96	54,311	794	2,239	3,941	175	7,208	870	3,009	1,360	9,737	3,168	1,951	12,731	7,128
	Males, .	4·10	28,003	418	1,151	2,087	106	3,665	454	1,615	704	5,030	1,636	987	6,489	3,661
	Fem., .	3·85	26,247	375	1,084	1,850	69	3,538	416	1,389	655	4,683	1,530	960	6,242	3,456
	Unk., .	·01	61	1	4	4	–	5	–	5	1	24	2	4	–	11
July.	Totals,	8·72	59,480	1,069	2,415	4,356	177	7,673	986	3,378	1,497	10,348	3,460	2,132	14,102	7,887
	Males, .	4·47	30,481	551	1,210	2,228	90	3,912	523	1,678	753	5,356	1,796	1,100	7,295	3,989
	Fem., .	4·24	28,929	517	1,202	2,117	85	3,752	461	1,698	743	4,978	1,658	1,028	6,806	3,884
	Unk., .	·01	70	1	3	11	2	9	2	2	1	14	6	4	1	14
Aug.	Totals, .	9·23	62,974	1,213	2,465	4,534	191	8,305	1,058	3,536	1,553	11,417	3,660	2,218	14,576	8,248
	Males, .	4·72	32,229	620	1,275	2,305	102	4,215	537	1,821	812	5,865	1,912	1,187	7,375	4,203
	Fem., .	4·50	30,682	590	1,188	2,220	89	4,087	519	1,708	740	5,535	1,744	1,028	7,200	4,034
	Unk., .	·01	63	3	2	9	–	3	2	7	1	17	4	3	1	11

Sept.	Totals, .	8·78	59,884	1,139	2,438	4,482	171	7,798	1,015	3,357	1,487	10,924	3,577	2,232	13,703	7,561
	Males, .	4·51	30,748	616	1,274	2,291	82	4,024	537	1,698	750	5,680	1,823	1,145	6,952	3,876
	Fem., .	4·26	29,067	520	1,162	2,186	88	3,763	475	1,654	734	5,225	1,752	1,084	6,750	3,674
	Unk., .	·01	69	3	2	5	1	11	3	5	3	19	2	3	1	11
Oct.	Totals, .	9·00	61,410	1,149	2,415	4,566	175	7,964	1,036	3,404	1,528	11,207	3,714	2,216	14,266	7,770
	Males, .	4·64	31,645	571	1,285	2,339	102	4,108	561	1,788	798	5,672	1,879	1,173	7,283	4,086
	Fem., .	4·35	29,711	573	1,128	2,223	71	3,852	471	1,612	729	5,525	1,831	1,039	6,982	3,675
	Unk., .	·01	54	5	2	4	2	4	4	4	1	10	4	4	1	9
Nov.	Totals, .	8·68	59,190	1,054	2,154	4,456	172	7,657	932	3,417	1,374	10,837	3,587	2,159	13,953	7,438
	Males, .	4·43	30,237	548	1,121	2,264	80	3,955	451	1,728	693	5,576	1,762	1,155	7,074	3,830
	Fem., .	4·24	28,886	499	1,029	2,177	90	3,691	479	1,688	681	5,251	1,821	1,003	6,879	3,598
	Unk., .	·01	67	7	4	15	2	11	2	1	-	10	4	1	-	10
Dec.	Totals, .	8·99	61,312	1,028	2,300	4,666	150	7,882	925	3,456	1,493	11,587	3,750	2,233	14,354	7,488
	Males, .	4·61	31,430	536	1,173	2,393	68	4,080	441	1,806	800	5,960	1,920	1,164	7,234	3,855
	Fem., .	4·47	29,781	489	1,124	2,261	82	3,791	480	1,646	692	5,600	1,816	1,064	7,114	3,622
	Unk., .	·01	101	3	3	12	-	11	4	4	1	27	14	5	6	11
Not stated.	Totals, .	·04	291	9	22	57	2	16	5	33	9	66	19	5	7	41
	Males, .	·015	106	2	8	22	1	6	2	15	2	27	7	3	1	10
	Fem., .	·020	151	5	11	30	1	9	1	16	6	32	10	2	6	22
	Unk., .	·005	34	2	3	5	-	1	2	2	1	7	2	-	-	9

SUPPLEMENT TO TABLE XV.

PLURALITY BIRTHS. — SEVENTEEN YEARS, 1865–81.

[Included in Tables XIV. and XV.]

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
17 YEARS.	Totals, .	12,623	221	650	842	58	1781	235	688	302	2323	794	535	2547	1647
	Males, .	6,412	101	327	434	28	921	132	335	150	1171	425	279	1281	828
	Fem., .	6,205	120	323	408	28	860	101	353	152	1152	369	256	1266	817
	Unk., .	6	–	–	–	2	–	2	–	–	–	–	–	–	2
Jan.	Totals, .	929	22	43	65	6	133	18	26	22	168	58	42	209	117
	Males, .	459	10	21	34	–	66	7	10	9	83	33	21	107	58
	Fem., .	468	12	22	31	4	67	11	16	13	85	25	21	102	59
	Unk., .	2	–	–	–	2	–	–	–	–	–	–	–	–	–
Feb.	Totals, .	802	10	40	52	6	99	12	54	16	144	64	28	171	106
	Males, .	413	4	19	22	1	57	6	29	11	68	37	14	87	58
	Fem., .	389	6	21	30	5	42	6	25	[illegible]	76	27	14	84	48
Mar.	Totals, .	875	10	48	32	2	129	21	43	40	171	58	48	151	122
	Males, .	444	4	28	14	2	64	17	22	17	88	36	24	74	54
	Fem., .	431	6	20	18	–	65	4	21	23	83	22	24	77	68
April.	Totals, .	983	16	46	63	10	148	18	38	24	186	72	40	192	130
	Males, .	485	7	25	27	4	90	8	18	13	86	34	19	92	62
	Fem., .	498	9	21	36	6	58	10	20	11	100	38	21	100	68
May.	Totals,	1,024	12	46	61	4	151	23	64	28	208	36	52	189	150
	Males, .	549	7	20	36	3	69	12	33	16	115	19	35	105	79
	Fem., .	475	5	26	25	1	82	11	31	12	93	17	17	84	71
June.	Totals, .	1,135	12	60	88	4	169	22	70	22	196	81	42	225	144
	Males, .	568	7	25	45	1	87	17	37	12	103	49	18	101	66
	Fem., .	567	5	35	43	3	82	5	33	10	93	32	24	124	78
July.	Totals, .	1,080	28	58	76	4	160	22	58	24	200	63	36	179	172
	Males, .	547	13	29	44	2	76	10	27	11	107	29	17	88	94
	Fem., .	533	15	29	32	2	84	12	31	13	93	34	19	91	78

Supplement to Table XV. — Concluded.

Year and Months.	SEX.	State.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Aug.	Totals, .	1,207	22	78	89	4	185	20	70	30	206	62	34	250	157
	Males, .	601	13	38	41	1	90	9	33	16	106	29	16	122	87
	Fem., .	606	9	40	48	3	95	11	37	14	100	33	18	128	70
Sept.	Totals, .	1,148	26	84	94	6	157	30	76	16	174	42	68	228	147
	Males, .	590	17	48	58	4	79	20	33	8	93	20	38	100	72
	Fem., .	554	9	36	36	2	78	8	43	8	81	22	30	128	73
	Unk., .	4	-	-	-	-	-	2	-	-	-	-	-	-	2
Oct.	Totals. .	1,225	20	54	92	4	150	15	64	24	232	107	58	283	122
	Males, .	623	6	28	52	4	82	11	28	10	102	60	27	145	68
	Fem., .	602	14	26	40	-	68	4	36	14	130	47	31	138	54
Nov.	Totals, .	1,021	24	45	46	4	136	10	58	24	205	78	49	218	124
	Males. .	529	6	25	29	2	65	3	32	10	104	37	29	127	60
	Fem., .	492	18	20	17	2	71	7	26	14	101	41	20	91	64
Dec.	Totals, .	1,194	19	48	84	4	164	24	67	32	233	73	38	252	156
	Males, .	604	7	21	32	4	96	12	33	17	116	42	21	133	70
	Fem., .	590	12	27	52	-	68	12	34	15	117	31	17	119	86

TABLE XVI.—STILL-BORN.—SEVENTEEN YEARS, 1865–81.

Distinguishing by Counties, by Months, and by Sex, the Registered Number of Still-births during the Seventeen Years, 1865–81.

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
17 YEARS.	Totals, .	20,650	267	291	1763	107	2622	134	663	274	2876	940	475	8579	1659
	Males, .	11,532	136	156	976	47	1427	71	355	123	1586	483	253	4993	926
	Fem., .	7,868	100	88	648	25	1016	45	230	105	1040	365	170	3422	614
	Unk., .	1,250	31	47	139	35	179	18	78	46	250	92	52	164	119
Jan.	Totals, .	1,665	19	11	156	13	205	6	47	14	238	67	37	727	125
	Males, .	940	11	9	82	8	106	4	24	7	129	35	22	429	74
	Fem., .	637	5	-	56	5	88	1	19	4	83	27	13	290	46
	Unk.,	88	3	2	18	-	11	1	4	3	26	5	2	8	5
Feb.	Totals, .	1,634	12	18	129	10	227	4	38	24	229	83	40	688	132
	Males, .	930	6	10	72	7	126	3	20	11	137	43	21	401	73
	Fem., .	605	6	6	50	-	81	1	11	9	82	31	14	268	46
	Unk., .	99	-	2	7	3	20	-	7	4	10	9	5	19	13
March.	Totals, .	1,818	16	30	187	5	217	8	69	27	248	91	31	758	131
	Males, .	1,030	11	16	107	3	120	3	38	8	137	45	14	448	80
	Fem. .	667	4	10	67	-	78	2	24	13	87	35	10	292	45
	Unk., .	121	1	4	13	2	19	3	7	6	24	11	7	18	6
April.	Totals, .	1,723	14	22	128	10	229	16	49	20	255	75	38	726	141
	Males, .	976	9	9	64	4	119	7	25	11	145	41	20	434	88
	Fem., .	648	4	9	54	2	90	9	19	5	88	29	12	281	46
	Unk., .	99	1	4	10	4	20	-	5	4	22	5	6	11	7
May.	Totals, .	1,686	20	24	146	6	200	12	50	29	253	67	35	714	130
	Males, .	910	9	8	78	1	104	6	31	10	128	37	19	408	71
	Fem., .	682	8	9	56	2	87	5	13	16	103	25	12	294	52
	Unk., .	94	3	7	12	3	9	1	6	3	22	5	4	12	7
June.	Totals, .	1,756	21	25	150	11	209	15	50	27	234	95	43	734	142
	Males, .	996	12	14	85	6	117	8	27	12	141	57	21	426	70
	Fem , .	662	7	9	51	3	79	3	16	15	77	34	19	292	57
	Unk., .	98	2	2	14	2	13	4	7	-	16	4	3	16	15
July.	Totals, .	1,737	24	27	158	9	200	12	57	21	240	77	32	740	140
	Males, .	981	9	15	85	4	120	8	32	12	124	39	17	442	74
	Fem., .	648	10	7	58	3	69	4	18	5	95	31	8	285	55
	Unk., .	108	5	5	15	2	11	-	7	4	21	7	7	13	11

TABLE XVI. — Concluded.

Year and Months.	SEX.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
Aug.	Totals, .	1,716	30	19	131	11	236	9	50	16	219	67	51	733	144
	Males, .	962	11	12	71	1	126	4	25	8	124	34	25	440	81
	Fem., .	659	18	4	51	5	101	3	16	6	76	27	17	280	55
	Unk., .	95	1	3	9	5	9	2	9	2	19	6	9	13	8
Sept.	Totals, .	1,620	26	17	122	11	198	9	68	24	233	70	23	678	141
	Males, .	889	14	12	70	2	102	4	38	9	121	37	13	390	77
	Fem., .	626	10	3	45	2	80	4	27	11	91	25	8	272	48
	Unk., .	105	2	2	7	7	16	1	3	4	21	8	2	16	16
Oct.	Totals, .	1,666	19	30	159	9	234	12	46	27	205	75	41	683	126
	Males, .	937	9	17	93	6	135	5	21	16	104	40	17	406	68
	Fem., .	601	6	7	50	–	81	6	17	5	70	27	21	263	48
	Unk., .	128	4	6	16	3	18	1	8	6	31	8	3	14	10
Nov.	Totals, .	1,660	36	37	141	6	204	14	62	18	246	68	55	639	134
	Males, .	915	21	19	81	4	117	8	34	9	127	37	31	351	76
	Fem., .	651	14	12	52	1	73	4	24	5	100	21	21	275	49
	Unk., .	94	1	6	8	1	14	2	4	4	19	10	3	13	9
Dec.	Totals,	1,944	30	30	153	6	261	17	77	27	270	95	48	759	171
	Males, .	1,058	14	15	87	1	133	11	40	10	167	37	32	418	93
	Fem., .	774	8	12	57	2	109	3	26	11	85	49	15	330	67
	Unk., .	112	8	3	9	3	19	3	11	6	18	9	1	11	11
Not stated.	Totals, .	25	–	1	3	-	2	-	–	–	6	10	1	-	2
	Males, .	8	–	–	1	-	2	–	–	–	2	1	1	–	1
	Fem., .	8	–	–	1	–	-	–	–	–	3	4	-	–	–
	Unk., .	9	–	1	1	–	–	-	–	–	1	5	–	–	1

TABLE XVII. — MARRIAGES. — SEVENTEEN YEARS, 1865–81.

Distinguishing by Counties, and by Months, the Number of Marriages registered during the Seventeen Years, 1865–81.

SEVENTEEN YEARS. MONTHS.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
SEVENTEEN YEARS, .	247,393	4,984	8,739	18,679	1,144	34,830	4,708	14,617	6,511	43,135	12,327	9,628	58,363	29,728
January, . . .	22,428	626	693	1,782	110	2,975	429	1,503	540	3,776	1,040	845	5,352	2,757
February, . . .	18,546	380	629	1,410	75	2,470	325	1,255	455	3,118	819	635	4,912	2,063
March, ...	12,181	310	510	898	71	1,888	337	719	373	1,980	522	552	2,595	1,426
April, ...	19,295	331	643	1,294	59	2,739	409	1,052	533	3,377	1,017	746	4,744	2,351
May, ...	21,158	346	732	1,602	91	2,835	443	1,403	629	3,577	1,023	766	4,970	2,741
June, ...	22,119	320	691	1,711	71	3,219	384	1,206	545	3,960	1,157	859	5,303	2,693
July, ...	17,633	282	589	1,386	84	2,633	241	1,018	413	3,078	848	662	4,346	2,053
August, ...	16,405	239	537	1,306	86	2,257	268	971	401	2,855	796	552	4,135	2,002
September, . . .	21,273	254	880	1,567	93	2,947	356	1,235	565	3,991	1,023	767	5,127	2,468
October, . . .	25,084	391	943	1,804	147	3,465	458	1,409	653	4,501	1,330	862	6,181	2,940
November, . . .	30,664	846	993	2,330	122	4,339	584	1,707	819	5,406	1,679	1,408	6,719	3,712
December, . . .	20,229	651	726	1,578	131	3,054	459	1,083	584	3,461	1,071	956	3,975	2,500
Unknown, . . .	378	8	173	11	4	9	15	56	1	55	2	18	4	22

TABLE XVIII.—MARRIAGES—SEVENTEEN YEARS, 1865–81.

Showing the Social Condition and Ages of Parties Married during the Seventeen Years, 1865–81.

AGGREGATE — Of all Conditions.

AGE OF MALES.	AGE OF FEMALES.														
	ALL AGES.	Under 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	Over 75	Unknown.
ALL AGES,	247,393	47,858	109,353	50,388	17,849	9,828	4,956	2,830	1,548	784	494	263	80	28	1,134
Und. 20,	4726	3343	1259	90	18	6	1	–	–	–	–	–	–	–	9
20 to 25,	93426	30749	53761	7747	821	184	22	8	4	1	–	–	–	–	129
25 to 30,	77138	10736	39001	23138	3319	662	101	33	6	2	–	–	–	1	139
30 to 35,	31155	2177	10428	11399	5505	1288	231	50	10	3	3	–	–	–	61
35 to 40,	15727	566	3254	4768	3824	2556	572	118	18	4	6	–	–	–	41
40 to 45,	8477	145	999	1821	2102	1941	1101	269	51	12	3	2	–	–	31
45 to 50,	5778	72	393	854	1225	1481	969	612	129	21	3	1	–	–	18
50 to 55,	3873	27	132	346	594	881	856	559	357	71	27	9	–	–	14
55 to 60,	2499	15	56	138	261	480	521	500	302	168	33	10	1	1	13
60 to 65,	1858	6	28	50	109	222	367	360	336	211	120	35	6	2	6
65 to 70,	1130	3	13	14	46	77	128	204	215	162	150	93	16	1	8
70 to 75,	598	–	6	6	14	36	59	79	88	94	97	74	36	8	1
75 to 80,	217	1	–	3	3	5	19	30	22	33	44	31	17	8	1
Over 80,	69	–	3	3	–	3	7	7	8	2	6	8	4	4	14
Unk., .	722	18	20	11	8	6	2	1	2	–	2	–	–	3	649

(A.) First Marriage of both Parties.

ALL AGES,	194,179	45,657	99,458	37,828	7,704	2,145	516	165	62	18	13	2	3	1	607
Und. 20,	4653	3334	1227	72	10	3	–	–	–	–	–	–	–	–	7
20 to 25,	89722	30316	52127	6634	467	64	5	4	1	1	–	–	–	–	103
25 to 30,	68156	9918	36024	19821	2013	250	21	12	1	1	–	–	–	1	94
30 to 35,	21327	1676	7923	8163	2999	467	50	6	1	–	–	–	–	–	42
35 to 40,	6648	300	1687	2335	1460	719	113	16	2	–	1	–	–	–	15
40 to 45,	2001	63	318	548	511	360	151	35	9	1	–	–	–	–	5
45 to 50,	792	22	100	182	169	171	90	46	7	–	1	–	–	–	4
50 to 55,	303	6	22	48	57	77	51	20	15	4	–	–	–	–	3
55 to 60,	117	3	9	11	11	23	23	16	13	6	–	–	–	–	2
60 to 65,	52	3	3	4	3	8	8	7	6	2	7	–	1	–	–
65 to 70,	20	–	3	1	2	1	3	1	5	1	2	1	–	–	–
70 to 75,	13	–	–	1	–	2	1	2	1	2	2	–	2	–	–
75 to 80,	2	–	–	1	–	–	–	–	–	–	–	1	–	–	–
Over 80,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Unk., .	373	16	15	7	2	–	–	–	1	–	–	–	–	–	332

TABLE XVIII. — Continued.

(B.) First Marriage of Male, and Second Marriage of Female.

AGE OF MALES.	AGE OF FEMALES.														
	ALL AGES.	Under 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	Over 75	Unknown.
ALL AGES.	12,333	146	2,125	3,939	3,057	1,811	718	272	120	39	27	6	1	–	72
Und. 20,	67	7	30	18	8	3	1	–	–	–	–	–	–	–	–
20 to 25,	2,492	90	1,003	929	326	109	16	4	3	–	–	–	–	–	12
25 to 30,	3,983	40	743	1,791	971	334	65	14	5	–	–	–	–	–	20
30 to 35,	2,698	7	235	799	1,039	458	120	25	6	2	2	–	–	–	5
35 to 40,	1,592	2	79	291	482	495	176	45	10	2	3	–	–	–	7
40 to 45,	740	–	22	74	144	233	181	61	15	4	2	1	–	–	3
45 to 50,	378	–	8	24	53	107	87	61	31	6	–	–	–	–	1
50 to 55,	202	–	3	8	21	44	46	35	31	8	4	–	–	–	2
55 to 60,	70	–	1	4	6	17	16	10	7	6	2	–	–	–	1
60 to 65,	57	–	–	1	5	5	8	10	10	9	6	3	–	–	–
65 to 70,	18	–	–	–	–	2	1	6	2	1	5	1	–	–	–
70 to 75,	5	–	–	–	1	1	–	–	–	–	1	1	1	–	–
75 to 80,	4	–	–	–	–	–	–	1	–	1	2	–	–	–	–
Over 80,	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Unk., .	26	–	1	–	1	3	1	–	–	–	–	–	–	–	20

(C.) Second Marriage of the Male, but First Marriage of the Female.

ALL AGES.	25,368	1961	7,053	6,658	4,306	2,756	1370	667	286	117	52	24	3	3	112
Und. 20,	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–
20 to 25,	971	306	522	122	14	3	1	–	–	–	–	–	–	–	3
25 to 30,	4,124	751	2,021	1,166	156	20	2	3	–	1	–	–	–	–	4
30 to 35,	5,576	477	2,114	1,911	885	162	16	3	–	–	–	–	–	–	8
35 to 40,	5,112	256	1,362	1,669	1,142	561	98	9	2	–	–	–	–	–	13
40 to 45,	3,487	81	599	942	898	647	255	46	3	2	–	1	–	–	13
45 to 50,	2,449	48	258	492	641	578	277	135	13	3	–	–	–	–	4
50 to 55,	1,540	21	97	221	325	382	276	133	71	9	–	2	–	–	3
55 to 60,	965	12	41	84	151	238	205	144	57	21	5	2	1	–	4
60 to 65,	558	3	21	31	53	105	137	100	62	25	16	2	–	1	2
65 to 70,	330	3	7	11	30	40	65	63	52	34	13	10	–	–	2
70 to 75,	132	–	5	5	8	12	29	21	21	15	10	5	–	1	–
75 to 80,	36	1	–	1	–	4	4	6	3	6	7	2	2	–	–
Over 80,	17	–	1	–	–	3	4	4	2	1	1	–	–	1	–
Unk., .	70	2	4	3	3	1	1	–	–	–	–	–	–	–	56

TABLE XVIII.—Concluded.

(D.) Subsequent Marriage of both Parties.

AGE OF MALES.	AGE OF FEMALES.														
	ALL AGES.	Under 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	Over 75	Unknown.
ALL AGES,	14,968	48	613	1,884	2,755	3,097	2346	1722	1077	606	402	229	73	24	92
Und. 20,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20 to 25,	146	13	63	49	12	8	–	–	–	–	–	–	–	–	1
25 to 30,	759	14	174	321	172	58	13	4	–	–	–	–	–	–	3
30 to 35,	1,510	14	144	514	573	197	45	16	3	1	1	–	–	–	2
35 to 40,	2,352	5	121	468	737	777	184	48	4	2	2	–	–	–	4
40 to 45,	2,231	1	60	253	545	695	512	127	24	5	1	–	–	–	8
45 to 50,	2,148	1	27	155	360	622	514	369	78	12	2	1	–	–	7
50 to 55,	1,822	–	10	68	191	377	482	370	239	50	23	6	–	–	6
55 to 60,	1,346	–	5	39	93	201	277	330	225	135	26	8	–	1	6
60 to 65,	1,186	–	4	13	48	104	213	243	257	173	91	30	5	1	4
65 to 70,	757	–	3	2	14	34	59	132	155	125	130	80	16	1	6
70 to 75,	447	–	1	–	5	21	29	56	66	76	84	68	33	7	1
75 to 80,	175	–	–	1	3	1	15	23	19	26	35	28	15	8	1
Over 80,	35	–	–	1	–	–	3	3	6	1	5	8	4	3	1
Unk., .	54	–	1	–	2	2	–	1	1	–	2	–	–	3	42

(E.) Condition of Parties not stated.

ALL AGES,	545	46	104	79	27	19	6	4	3	4	–	2	–	–	251
Und. 20,	5	2	1	–	–	–	–	–	–	–	–	–	–	–	2
20 to 25,	95	24	46	13	2	–	–	–	–	–	–	–	–	–	10
25 to 30,	116	13	39	39	7	–	–	–	–	–	–	–	–	–	18
30 to 35,	44	3	12	12	9	4	–	–	–	–	–	–	–	–	4
35 to 40,	23	3	5	5	3	4	1	–	–	–	–	–	–	–	2
40 to 45,	18	–	–	4	4	6	2	–	–	–	–	–	–	–	2
45 to 50,	11	1	–	1	2	3	1	1	–	–	–	–	–	–	2
50 to 55,	6	–	–	1	–	1	1	1	1	–	–	1	–	–	–
55 to 60,	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–
60 to 65,	5	–	–	1	–	–	1	–	1	2	–	–	–	–	–
65 to 70,	5	–	–	–	–	–	–	2	1	1	–	1	–	–	–
70 to 75,	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–
75 to 80,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Over 80,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Unk., .	215	–	1	3	–	–	–	–	–	–	–	–	–	–	211

TABLE XIX. — DEATHS. — SEVENTEEN YEARS, 1865–81.

*Distinguishing by Counties, by Months, and by Sex, the Registered Number of Persons who have Died during the Seventeen Years, 1865–81; also, for the entire State, the Percentage of the Numbers in each Month (distinguishing Sex) to the **Total Number**.*

Year and Months.	SEX.	Percentage.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
17 Years.	Totals, .	100·00	514,668	9,365	18,074	39,547	2,953	69,573	9,330	28,484	13,325	91,552	27,208	20,055	123,737	61,465
	Males, .	49·73	255,965	4,775	9,041	19,703	1,485	34,480	4,553	14,142	6,444	44,884	13,439	9,994	62,430	30,595
	Fem., .	50·16	258,142	4,539	8,973	19,801	1,463	35,011	4,748	14,307	6,858	46,601	13,744	10,013	61,287	30,797
	Unk., .	·11	561	51	60	43	5	82	29	35	23	67	25	48	20	73
Jan.	Totals, .	8·08	41,598	701	1,451	3,231	254	5,435	729	2,222	1,025	7,507	2,233	1,585	10,337	4,888
	Males, .	4·02	20,672	370	696	1,664	125	2,683	366	1,066	493	3,703	1,105	769	5,205	2,427
	Fem., .	4·06	20,900	330	755	1,566	129	2,748	362	1,156	532	3,800	1,126	812	5,130	2,454
	Unk., .	–	26	1	–	1	–	4	1	–	–	4	2	4	2	7
Feb.	Totals, .	7·58	39,025	743	1,350	2,903	232	5,529	655	2,069	971	6,938	2,074	1,588	9,317	4,656
	Males, .	3·77	19,408	401	660	1,419	101	2,783	299	1,043	465	3,405	1,029	797	4,726	2,280
	Fem., .	3·80	19,578	340	686	1,478	130	2,740	353	1,023	505	3,530	1,044	789	4,589	2,371
	Unk., .	·01	39	2	4	6	1	6	3	3	1	3	1	2	2	5
March.	Totals, .	8·44	43,409	860	1,545	3,156	247	5,855	808	2,384	1,184	7,698	2,358	1,753	10,396	5,165
	Males, .	4·09	21,038	431	731	1,521	118	2,775	389	1,169	550	3,617	1,162	869	5,151	2,555
	Fem., .	4·34	22,323	424	806	1,633	129	3,073	417	1,213	632	4,077	1,193	878	5,244	2,604
	Unk., .	·01	48	5	8	2	–	7	2	2	2	4	3	6	1	6
April.	Totals, .	7·99	41,110	778	1,521	3,143	263	5,611	705	2,276	1,127	7,087	2,198	1,722	9,676	5,003
	Males, .	3·96	20,363	388	757	1,548	139	2,814	359	1,094	548	3,474	1,034	881	4,877	2,450
	Fem., .	4·02	20,704	385	758	1,591	123	2,794	343	1,176	577	3,608	1,163	840	4,798	2,548
	Unk., .	·01	43	5	6	4	1	3	3	6	2	5	1	1	1	5
May.	Totals, .	7·75	39,884	670	1,359	2,900	239	5,346	761	2,230	1,259	6,946	2,162	1,661	9,402	4,949
	Males, .	3·87	19,931	376	669	1,453	114	2,615	367	1,094	584	3,433	1,073	793	4,833	2,527
	Fem., .	3·87	19,918	292	687	1,447	125	2,725	387	1,133	675	3,507	1,088	866	4,568	2,418

June.	Totals, .	6·71	34,515	657	1,150	2,474	201	4,624	630	1,946	875	6,206	1,827	1,382	8,332	4,211
	Males, .	3·36	17,302	344	592	1,289	105	2,258	333	951	438	3,058	944	715	4,190	2,085
	Fem., .	3·34	17,173	310	556	1,182	96	2,359	297	991	435	3,141	878	665	4,139	2,124
	Unk., .	·01	40	3	2	3	–	7	–	4	2	7	5	2	3	2
July.	Totals, .	9·28	47,766	741	1,435	3,674	237	6,130	745	3,081	1,184	8,645	2,326	1,496	12,403	5,669
	Males, .	4·74	24,388	372	735	1,876	130	3,098	357	1,603	606	4,321	1,178	788	6,343	2,981
	Fem., .	4·53	23,320	361	695	1,796	107	3,020	384	1,477	575	4,321	1,145	703	6,059	2,677
	Unk., .	·01	58	8	5	2	–	12	4	1	3	3	3	5	1	11
Aug.	Totals, .	11·02	56,729	918	2,018	4,363	247	8,029	1,013	3,102	1,420	10,553	2,967	2,037	13,136	6,926
	Males, .	5·58	28,709	465	1,058	2,206	132	4,113	494	1,555	696	5,324	1,470	1,012	6,694	3,490
	Fem., .	5·43	27,951	444	955	2,152	115	3,904	516	1,541	723	5,220	1,496	1,020	6,436	3,429
	Unk., .	·01	69	9	5	5	–	12	3	6	1	9	1	5	6	7
Sept.	Totals, .	9·36	48,213	926	1,755	3,885	307	6,654	930	2,532	1,238	8,545	2,640	1,981	11,011	5,809
	Males, .	4·67	24,039	457	892	1,944	152	3,368	436	1,258	605	4,197	1,306	972	5,592	2,860
	Fem., .	4·68	24,117	467	854	1,937	154	3,277	494	1,270	624	4,344	1,331	1,004	5,417	2,944
	Unk., .	·01	57	2	9	4	1	9	–	4	9	4	3	5	2	5
Oct.	Totals, .	8·26	42,500	806	1,572	3,425	251	5,798	837	2,301	1,085	7,492	2,304	1,721	9,857	5,051
	Males, .	4·05	20,857	390	782	1,666	118	2,811	426	1,128	511	3,641	1,146	871	4,874	2,493
	Fem., .	4·20	21,598	410	789	1,751	132	2,982	409	1,171	572	3,845	1,157	848	4,983	2,549
	Unk., .	·01	45	6	1	8	1	5	2	2	2	6	1	2	–	9
Nov.	Totals, .	7·54	38,814	770	1,468	3,154	227	5,178	756	2,148	1,007	6,637	1,995	1,552	9,545	4,377
	Males, .	3·70	19,076	372	718	1,533	110	2,597	364	1,071	484	3,194	925	761	4,804	2,143
	Fem., .	3·83	19,701	395	745	1,618	116	2,578	390	1,075	523	3,438	1,070	783	4,741	2,229
	Unk., .	·01	37	3	5	3	1	3	2	2	–	5	–	8	–	5
Dec.	Totals, .	7·96	40,960	783	1,430	3,216	240	5,353	760	2,184	941	7,287	2,115	1,570	10,325	4,756
	Males, .	3·90	20,090	400	740	1,573	134	2,534	363	1,108	459	3,512	1,062	762	5,141	2,302
	Fem., .	4·05	20,816	380	680	1,639	106	2,811	395	1,075	482	3,767	1,049	802	5,183	2,447
	Unk., .	·01	54	3	10	4	–	8	2	1	–	8	4	6	1	7
Not stated.	Totals, .	·03	145	12	20	23	8	31	1	9	9	11	9	7	–	5
	Males, .	·02	92	9	11	11	7	31	–	2	5	5	5	4	–	2
	Fem., .	·01	43	1	7	11	1	–	1	6	3	3	4	3	–	3
	Unk., .	–	10	2	2	1	–	–	–	1	1	3	–	–	–	–

TABLE XX. — DEATHS. — SEVENTEEN YEARS, 1865–81.

Distinguishing by Counties, by Age, and by Sex, the Registered Number of Persons who have Died during the Seventeen Years, 1865–81; also, for the entire State, the Percentage of the Numbers in each specified Age (distinguishing Sex) to the Total Number.

AGE.	SEX.	Percentage.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
ALL AGES.	Totals, .	100·00	514,668	9,365	18,074	39,547	2,953	69,573	9,330	28,484	13,325	91,552	27,208	20,055	123,737	61,465
	Males, .	49·73	255,965	4,775	9,041	19,703	1,485	34,480	4,553	14,142	6,444	44,884	13,439	9,994	62,430	30,595
	Fem., .	50·16	258,142	4,539	8,973	19,801	1,463	35,011	4,748	14,307	6,858	46,601	13,744	10,013	61,287	30,797
	Unk., .	·11	561	51	60	43	5	82	29	35	23	67	25	48	20	73
Under 1.	Totals, .	21·08	108,490	1,168	3,096	8,467	220	14,408	1,290	6,278	2,217	20,062	5,149	3,170	30,696	12,269
	Males, .	11·53	59,342	637	1,738	4,738	124	7,898	716	3,419	1,211	10,895	2,796	1,752	16,561	6,857
	Fem., .	9·44	48,627	482	1,305	3,690	91	6,434	546	2,829	988	9,106	2,329	1,370	14,115	5,342
	Unk., .	·11	521	49	53	39	5	76	28	30	18	61	24	48	20	70
1 to 2	Totals, .	6·89	35,459	333	982	2,864	54	4,464	387	2,200	654	6,398	1,691	922	10,227	4,283
	Males, .	3·59	18,446	176	541	1,464	26	2,380	201	1,118	332	3,298	866	496	5,313	2,235
	Fem., .	3·30	17,007	157	440	1,400	28	2,083	185	1,080	322	3,100	825	426	4,914	2,047
	Unk., .	–	6	–	1	–	–	1	1	2	–	–	–	–	–	1
2 to 3	Totals, .	3·33	17,145	212	552	1,365	33	2,224	198	1,054	334	3,068	839	458	4,645	2,163
	Males, .	1·72	8,837	112	303	709	16	1,136	102	542	175	1,575	423	223	2,392	1,129
	Fem., .	1·61	8,300	100	247	655	17	1,087	96	511	159	1,491	416	235	2,253	1,033
	Unk., .	–	8	–	2	1	–	1	–	1	–	2	–	–	–	1

3 to 4	Totals, .	2·81	11,888	141	401	879	26	1,658	144	727	249	2,116	605	337	3,175	1,430
	Males, .	1·17	6,040	73	225	432	12	854	76	346	116	1,084	290	154	1,644	734
	Fem., .	1·14	5,844	68	176	447	14	803	68	380	133	1,031	314	183	1,531	696
	Unk., .	-	4	-	-	-	-	1	-	1	-	1	1	-	-	-
4 to 5	Totals, .	1·70	8,726	98	295	677	32	1,243	107	538	179	1,586	459	214	2,262	1,036
	Males, .	·85	4,366	52	137	352	15	607	49	274	94	812	232	107	1,152	483
	Fem., .	·85	4,360	46	158	325	17	636	58	264	85	774	227	107	1,110	553
Under 5.	Totals, .	35·31	181,708	1,952	5,326	14,252	365	23,997	2,126	10,797	3,633	33,230	8,743	5,101	51,005	21,181
	Males, .	18·86	97,031	1,050	2,944	7,695	193	12,875	1,144	5,699	1,928	17,664	4,607	2,732	27,062	11,438
	Fem., .	16·34	84,138	853	2,326	6,517	167	11,043	953	5,064	1,687	15,502	4,111	2,321	23,923	9,671
	Unk., .	·11	539	49	56	40	5	79	29	34	18	64	25	48	20	72
5 to 10	Totals, .	4·29	22,083	322	830	1,743	86	3,156	332	1,425	540	4,063	1,243	744	5,085	2,514
	Males, .	2·16	11,123	171	429	903	40	1,556	176	710	264	2,066	631	383	2,536	1,258
	Fem., .	2·13	10,957	151	400	839	46	1,600	156	715	276	1,997	612	361	2,549	1,255
	Unk., .	-	3	-	1	1	-	-	-	-	-	-	-	-	-	1
10 to 15	Totals, .	2·08	10,691	211	485	856	48	1,442	210	655	319	1,940	600	452	2,063	1,410
	Males, .	·98	5,045	96	223	392	18	661	89	364	152	916	291	201	989	653
	Fem., .	1·10	5,646	115	262	464	30	781	121	291	167	1,024	309	251	1,074	757
15 to 20	Totals, .	3·65	18,769	359	757	1,419	71	2,553	362	1,250	581	3,297	972	709	4,038	2,401
	Males, .	1·58	8,136	176	323	570	37	1,069	157	535	224	1,390	454	286	1,877	1,038
	Fem., .	2·07	10,632	183	434	849	34	1,484	205	715	356	1,907	518	423	2,161	1,363
	Unk., .	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
20 to 30	Totals, .	9·92	51,080	1,010	1,720	3,562	248	6,788	884	2,874	1,207	9,128	2,542	1,850	13,392	5,875
	Males, .	4·51	23,202	510	776	1,608	145	2,923	383	1,279	532	3,917	1,149	870	6,469	2,641
	Fem., .	5·41	27,877	499	944	1,954	103	3,865	501	1,595	675	5,211	1,393	980	6,923	3,234
	Unk., .	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-

TABLE XX.—Concluded.

AGE.	SEX.	Percentage.	STATE.	Barnstable.	Berkshire.	Bristol.	Dukes and Nantucket.	Essex.	Franklin.	Hampden.	Hampshire.	Middlesex.	Norfolk.	Plymouth.	Suffolk.	Worcester.
30 to 40	Totals, .	8·00	41,156	749	1,287	2,889	210	5,345	659	2,154	1,041	7,493	2,025	1,411	11,465	4,428
	Males, .	3·67	18,893	346	544	1,337	114	2,358	278	955	437	3,306	897	601	5,752	1,968
	Fem., .	4·33	22,263	403	743	1,552	96	2,987	381	1,199	604	4,187	1,128	810	5,713	2,460
40 to 50	Totals, .	6 82	35,125	616	1,122	2,582	180	4,496	610	1,779	911	6,213	1,781	1,230	9,679	3,926
	Males, .	3·39	17,478	310	541	1,281	92	2,191	275	883	433	3,038	886	599	5,051	1,898
	Fem., .	3·43	17,646	306	580	1,301	88	2,305	335	896	478	3,175	895	631	4,628	2,028
	Unk., .	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-
50 to 60	Totals, .	6·77	34,831	661	1,282	2,628	251	4,435	714	1,778	952	6,260	1,878	1,463	8,397	4,132
	Males, .	3·56	18,294	346	663	1,382	128	2,232	380	928	465	3,301	996	820	4,508	2,145
	Fem., .	3·21	16,537	315	619	1,246	123	2,203	334	850	487	2,959	882	643	3,889	1,987
60 to 70	Totals, .	8·02	41,270	1,023	1,718	3,300	414	5,515	1,038	2,004	1,300	7,241	2,439	2,117	8,024	5,137
	Males, .	4·15	21,369	543	894	1,736	234	2,823	524	1,008	654	3,770	1,291	1,149	4,012	2,731
	Fem., .	3·87	19,901	480	824	1,564	180	2,692	514	996	646	3,471	1,148	968	4,012	2,406
70 to 80	Totals, .	8·40	43,244	1,396	1,883	3,402	525	6,080	1,231	2,114	1,574	7,150	2,718	2,750	6,566	5,855
	Males, .	4·00	20,626	715	938	1,612	250	2,831	600	1,046	793	3,352	1,336	1,405	2,845	2,903
	Fem., .	4·40	22,618	681	945	1,790	275	3,249	631	1,068	781	3,798	1,382	1,345	3,721	2,952
80 to 90	Totals, .	5·14	26,489	844	1,237	2,212	437	3,706	929	1,277	1,008	4,285	1,805	1,809	3,298	3,642
	Males, .	2·10	10,843	404	568	886	189	1,462	449	569	452	1,700	717	786	1,096	1,565
	Fem., .	3·04	15,646	440	669	1,326	248	2,244	480	708	556	2,585	1,088	1,023	2,202	2,077

90 to 100	Totals, .	·91	4,670	143	232	412	83	623	169	220	151	788	331	326	571	621
	Males, .	·30	1,548	60	94	142	25	194	62	83	59	245	107	116	172	189
	Fem., .	·61	3,122	83	138	270	58	429	107	137	92	543	224	210	399	432
Over 100	Totals, .	·05	261	2	24	20	3	24	5	12	4	53	11	8	53	42
	Males, .	·02	89	1	12	9	–	5	1	5	1	19	2	2	17	15
	Fem., .	·03	172	1	12	11	3	19	4	7	3	34	9	6	36	27
Not stated.	Totals, .	·64	3,291	77	171	270	32	1,413	61	145	104	411	120	85	101	301
	Males, .	·45	2,288	47	92	150	20	1,300	35	78	50	200	75	44	44	153
	Fem., .	·19	987	29	77	118	12	110	26	66	50	208	45	41	57	148
	Unk., .	–	16	1	2	2	–	3	–	1	4	3	–	–	–	–

APPENDIX.

LAWS
CONCERNING THE REGISTRATION OF BIRTHS, MARRIAGES, AND DEATHS.

[Public Statutes — Chapter 32.]

[Public Statutes — Chapter 145.]

OF MARRIAGE.

CERTAIN MARRIAGES PROHIBITED.

SECTION

1. Marriage between certain relations prohibited.
2. Same subject.
3. Same subject.
4. Polygamy forbidden.
5. Insane persons not to be capable of marrying.
6. Minors not to be married without consent of parents, etc.
7. Certain marriages to be void without decree.
8. Marriages between parties under age to be void in case of separation, etc.
9. Question as to validity of marriage on account of insanity or idiocy to be raised only between parties in their lifetime.
10. Marriages made out of the state, to evade its laws, to be void.
11. When validity of a marriage is doubted, either party may file libel to annul or affirm.

LEGITIMACY, CARE, ETC., OF ISSUE OF VOID MARRIAGES.

12. Issue of certain void marriage to be illegitimate.
13. of marriage void on account of the nonage, insanity, etc.
14. of marriage void on account of prior marriage.
15. Care and maintenance of children of void marriage.

NOTICE OF INTENTION OF MARRIAGE.

16. Notice of intention of marriage to be entered with town clerk.

SECTION

17. Certificate to be given by clerk to parties entering notice of intention of marriage.
18. Penalty for issuing certificate to certain minors, except on application of parent, etc.,
19. Clerk may require affidavit of age.
20. Penalty for wilful deception by party applying for certificate.
21. Parties going out of state to be married, to file, on their return, certificate of their marriage.

BY WHOM AND HOW MARRIAGE MAY BE SOLEMNIZED.

22. By whom marriages shall be solemnized and in what place.
23. Marriages among Quakers.
24. Persons solemnizing marriages to keep records and make returns.
25. Penalty on justice or minister for unlawfully marrying.
26. for solemnizing marriage without authority.
27. Certain marriages valid, though irregularly solemnized.
28. Marriage in foreign country by consul, etc., to be valid.

EVIDENCE OF MARRIAGE.

29. Record of marriage, etc., to be presumptive evidence thereof.
30. Certificate, etc., from consul, etc., to be presumptive evidence of marriage.
31. Admission of parties, general repute, etc., to be evidence of marriage.

CERTAIN MARRIAGES PROHIBITED.

SECTION 1. No man shall marry his mother, grandmother, daughter, granddaughter, step-mother, sister, grandfather's wife, son's wife, grandson's wife, wife's mother, wife's grandmother, wife's daughter, wife's granddaughter, brother's daughter, sister's daughter, father's sister, or mother's sister.

SECTION 2. No woman shall marry her father, grandfather, son, grandson, step-father, brother, grandmother's husband, daughter's husband, granddaughter's husband, husband's father, husband's grandfather, husband's son, husband's grandson, brother's son, sister's son, father's brother, or mother's brother.

SECTION 3. In all cases in which the relationship mentioned in the two preceding sections is founded on marriage, the prohibition shall continue notwithstanding the dissolution by death or divorce of the marriage on which such relationship is founded, unless the divorce is for a cause which shows such marriage to have been originally unlawful or void.

SECTION 4. All marriages contracted while either of the parties has a former wife or husband living, except as is provided in chapter one hundred and forty-six, shall be void.

SECTION 5. No insane person or idiot shall be capable of contracting marriage.

SECTION 6. No magistrate or minister shall solemnize a marriage, when he has reasonable cause to suppose the male to be under the age of twenty-one years or the female to be under the age of eighteen years, except with the consent of the parent or guardian having the custody of the minor, if there is any such parent or guardian in the Commonwealth competent to act.

SECTION 7. Every marriage solemnized within this Commonwealth, which is prohibited on account of consanguinity or affinity between the parties, or on account of either of them having a former wife or husband living, or when either party was insane or an idiot, shall be void without a decree of divorce or other legal process.

SECTION 8. Every marriage, solemnized when either party was under the age of consent shall be similarly void, if the parties separate during such nonage, and do not afterwards cohabit.

SECTION 9. The validity of a marriage shall not be questioned in the trial of a collateral issue on account of the insanity or idiocy of either party, but such question shall only be raised in a process instituted to test such validity in the lifetime of both parties.

SECTION 10. When persons resident in this Commonwealth, in order to evade any of the provisions of the first five sections of this chapter, and with an intention of returning to reside in this Commonwealth, go into another state or country and there have their marriage solemnized, and afterwards return and reside here, the marriage shall be deemed void in this Commonwealth.

SECTION 11. When the validity of a marriage is doubted, either party may file a libel for annulling such marriage, or, when the validity of a marriage is denied or doubted by either party, the other party may file a libel for affirming the same. Such libel shall be filed in the same manner as a libel for divorce, and all the provisions of chapter one hundred and forty-six relative to libels for divorce, and section twenty-four of said chapter relative to the powers of the court in relation thereto, shall, so far as applicable, apply to libels under this section. Upon proof of the nullity or validity of the marriage, it shall be declared void or affirmed by a decree of the court, and such decree of nullity may be made notwithstanding the marriage was solemnized out of the Commonwealth, if the libellant had his domicil in the Commonwealth when the marriage was solemnized and also when the libel was filed, and such decree affirming a marriage shall be conclusive upon all persons concerned.

LEGITIMACY, CARE, ETC., OF ISSUE OF VOID MARRIAGES.

SECTION 12. The issue of a marriage declared void on account of consanguinity or affinity between the parties shall be deemed to be illegitimate.

SECTION 13. The issue of a marriage declared void on account o the nonage, insanity, or idiocy of either party shall be deemed to be the legitimate issue of the parent who was capable of contracting the marriage.

SECTION 14. When a marriage is declared void on account of a prior marriage of either party, and it appears that the second marriage was contracted in good faith and with the full belief of the parties that the former husband or wife was dead, that fact shall be stated in the decree, and the issue of the second marriage, born or begotten before the commencement of the suit, shall be deemed to be the legitimate issue of the parent capable of contracting the marriage.

SECTION 15. Upon or after a decree of nullity the court shall have similar power to make orders concerning the care, custody, and maintenance of the minor children of the parties as upon a decree of divorce.

NOTICE OF INTENTION OF MARRIAGE.

SECTION 16. Persons intending to be joined in marriage in this Commonwealth shall before their marriage cause notice of their intention to be entered in the office of the clerk or registrar of the city or town in which they respectively dwell, or, if they do not dwell within the Commonwealth, in the office of the clerk or registrar of the city or town in which they propose to have the marriage solemnized. If there is no such clerk or registrar in the place of their residence, the entry shall be made in an adjoining city or town.

SECTION 17. The clerk or registrar shall deliver to the parties a certificate under his hand, specifying the time when notice of the intention of marriage was entered with him, together with all facts in relation to the marriage which are required by law to be ascertained and recorded, except those respecting the person by whom the marriage is to be solemnized. Such certificate shall be delivered to the minister or magistrate before whom the marriage is to be contracted, before he proceeds to solemnize the same.

SECTION 18. If a clerk or registrar issues such certificate to a male under the age of twenty-one years, or to a female under the age of eighteen years, when he has reasonable cause to suppose the person to be under such age, except upon the application or consent in writing of the parent, master, or guardian of such person, he shall forfeit a sum not exceeding one hundred dollars; but if there is no parent, master, or guardian in this Commonwealth competent to act, a certificate may be issued without such application or consent.

SECTION 19. The clerk or registrar may require of any person applying for such certificate an affidavit setting forth the age of the parties; which affidavit shall be sworn to before a justice of the peace, and shall be sufficient proof of age to authorize the issuing of the certificate.

SECTION 20. Whoever, when applying for such a certificate, wilfully makes a false statement in relation to the age, residence, parent, master or guardian of either of the parties intending marriage, shall forfeit a sum not exceeding two hundred dollars.

SECTION 21. When a marriage is solemnized in another state between parties living in this Commonwealth, and they return to dwell here, they shall within seven days after their return file with the clerk or registrar of the city or town where either of them lived at the time a certificate or declaration of their marriage, including the facts concerning marriages required by law; and for every neglect so to do they shall forfeit ten dollars.

BY WHOM AND HOW MARRIAGES MAY BE SOLEMNIZED.

SECTION 22. A marriage may be solemnized by a justice of the peace or a minister of the gospel, ordained according to the usage of his denomination, who resides in the Commonwealth and continues to perform the functions of his office; but every marriage shall be solemnized in the city or town in which the person solemnizing it resides, or in which one or both of the persons to be married reside.

SECTION 23. A marriage among the people called Friends or Quakers may be solemnized in the manner heretofore used and practised in their societies.

SECTION 24. Every justice of the peace, minister, and clerk or keeper of the records of a meeting wherein marriages among Friends or Quakers are solemnized shall make a record of each marriage solemnized before him, or in such meeting, and of all facts relating to the marriage which are required by law to be recorded. He shall also, between the first and tenth days of each month, return a copy of all such records for the month next preceding to the clerk or registrar of the city or town in which the marriage was solemnized, and shall, when one or both of the parties to the marriage resided in a city or town other than that in which the marriage was solemnized, return a copy of the record of such marriage to the clerk or registrar of the city or town in which either party resided, and to the clerks and registrars of both cities or towns when the parties resided in different places. All marriages so returned shall be recorded by the clerk or registrar, and every person neglecting to make the returns required by this section shall forfeit for each neglect not less than twenty nor more than one hundred dollars.

SECTION 25. A justice of the peace or minister who joins persons in marriage contrary to the provisions of this chapter, knowing that the marriage is not duly authorized, shall forfeit not less than fifty nor more than one hundred dollars.

SECTION 26. Whoever undertakes to join persons in marriage, knowing that he is not authorized so to do, shall be imprisoned in the jail for a term not exceeding six months, or pay a fine of not less than fifty nor more than two hundred dollars.

SECTION 27. No marriage solemnized before a person professing to be a justice of the peace or a minister of the gospel, or solemnized in the society of Friends according to the usages of said society, shall be deemed or adjudged to be void, nor shall the validity thereof be in any way affected by want of jurisdiction or authority in such person or society, or by an omission or by informality in the manner of entering the intention of marriage, if the marriage is in other respects lawful, and is consummated with a full belief on the part of the persons so married, or of either of them, that they have been lawfully joined in marriage.

SECTION 28. Marriages solemnized in a foreign country by a consul or diplomatic agent of the United States shall be valid in this Commonwealth.

EVIDENCE OF MARRIAGE.

SECTION 29. The record of a marriage, made and kept as prescribed by law by the person before whom the marriage has been solemnized or by the clerk or registrar of a city or town, or a copy of such record duly certified, shall be received in all courts and places as presumptive evidence of such marriage.

SECTION 30. When a marriage has been solemnized by a consul or diplomatic agent of the United States, a copy of the record or a certificate from such consul or agent shall be presumptive evidence of such marriage.

SECTION 31. When the fact of marriage is required or offered to be proved before a court, evidence of the admission of such fact by the party against whom the process is instituted, or evidence of general repute or of cohabitation as married persons, or any other circumstantial or presumptive evidence from which the fact may be inferred, shall be competent.

[Public Statutes, Chapter 199.]

SECTION 17. For lawfully solemnizing and certifying a marriage, a minister or justice of the peace shall be entitled to receive one dollar and twenty-five cents.

[Laws of 1882 — Chapter 194.]

AN ACT CONCERNING STATISTICS OF DIVORCE.

Be it enacted, etc., as follows:

SECTION 1. The clerks of courts for the several counties, and of the supreme judicial court for the county of Suffolk, shall, annually, during the month of February, make returns to the secretary of the Commonwealth in relation to libels for divorce in their respective counties for the calendar year next preceding. Such returns shall specify the following details: the number of libels pending at the beginning of the year; the number of libels filed within the year; the number of divorces granted; the number of divorces refused; the number of libels contested; the number of libels uncontested; the alleged cause for divorce in each case; the sex of the libellant and the length of time the parties have been married; and the number of cases in which notice has been given to the district-attorney for prosecution under section forty-four of chapter one hundred and forty-six of the Public Statutes, and the criminal offence for which divorce has been granted in such cases.

SECTION 2. The secretary shall furnish the said clerks of courts with suitable blank forms for the returns provided for in the preceding section.

SECTION 3. The secretary shall annually prepare from said returns full and complete abstracts and tabular statements of the facts relating to divorces for each county, and embody such abstracts and statements, with necessary analyses, in the annual reports to the legislature relating to the registry of births, deaths and marriages.

SECTION 4. The first return to be made under this act shall include the details specified in section one, so far as practicable, for the years eighteen hundred and seventy-nine, eighteen hundred and eighty, eighteen hundred and eighty-one, and eighteen hundred and eighty-two.

SECTION 5. This act shall take effect upon its passage. [*Approved May 1, 1882.*

STATISTICAL NOSOLOGY.

ADOPTED FOR REGISTRATION IN MASSACHUSETTS.

THE following plan of a Nomenclature and Classification of Diseases does not essentially differ from that authorized by the Registrar-General of England to be used in the preparation of the "Weekly Return of Births and Deaths in London," and is also, with slight modifications, identical with that embodied in a report drawn up by William Farr, Esq., M.D., of London, for the consideration of the International Statistical Congress which met at Paris in September, 1855; which report was printed in the Appendix to the Sixteenth Registration Report of the Registrar-General, England.

[NOTE.—This page and those that follow contain two lists of causes of death. The first—that on the left side—may be called the TABULAR LIST, and comprises all the heads which it is proposed to admit into the complete tables (IX. and X.), and under which ALL deaths, from whatever cause, are finally distributed. It represents those diseases which, under the same terms, or terms strictly synonymous with them, are found in practice to occur most frequently.

The SUPPLEMENTAL LIST is *subordinate* to the first, and contains the principal *special* diseases which it may be considered desirable to note. The figures in this list indicate the corresponding numbers of the tabular list under which such diseases are ultimately arranged.

Table VIII. includes both the Tabular and Supplemental lists; Tables IX. and X. the Tabular list only.]

CAUSES OF DEATH.

TABULAR LIST.	**SUPPLEMENTAL LIST.** *Of Diseases of Special Character (or Synonymes).*
CLASS I.—ZYMOTIC DISEASES.	
ORDER 1.—*Miasmatic.*	
I. 1.—1. Small-pox	I. 1.—1. Vaccination not stated. Small-pox (second attack). After vaccination. Erysipelas, &c., after vaccination. Chicken-pox. Miliaria.
2. Measles	
3. Scarlatina	3. Angina maligna.
4. Diphtheria	
5. Cerebro-spinal Meningitis	5. "Spotted fever."
6. Quinsy	6. Mumps. Tonsillitis.
7. Croup	
8. Whooping Cough	
9. Typhoid (and Infantile Fever)	9. Typhus fever.
10. Erysipelas	10. Pyemia. Hospital gangrene. Erythema.
11. Metria (Puerperal Fever)	11. Childbed fever.
12. Carbuncle	12 Anthrax.
13. Influenza	
14. Dysentery	
15. Diarrhœa	
16. Cholera Infantum	
17. Cholera	
18. Ague	18. Intermittent fever.
19. Remittent Fever	19. Yellow fever.
20. Rheumatism	20. Rheumatism, with pericarditis, or disease of heart.

CAUSES OF DEATH.

TABULAR LIST.	**SUPPLEMENTAL LIST.**
ORDER 2—*Enthetic.* I. 2.—1. Syphilis 2. Stricture of Urethra 3. Hydrophobia 4. Glanders 5. Malignant Pustule 6. Septicæmia	I. 2.—1. Gonorrhœa. Purulent ophthalmia. 6 Necusia (usually from dissection wounds).
ORDER 3.—*Dietic.* I. 3.—1. Privation 2. Purpura and Scurvy 3. Delirium Tremens, } (Alcoholism) 4. Intemperance, } (Alcoholism)	I. 3.—1. Want of breast milk. 2. Rickets. Bronchocele.
ORDER 4.—*Parasitic.* I. 4.—1. Thrush 2. Worms, &c.	I. 4.—2. Porrigo. Scabies. Tape worm. Hydatids. Trichiniasis.
CLASS II.—CONSTITUTIONAL DISEASES.	
ORDER 1—*Diathetic.* II. 1.—1. Gout 2. Dropsy 3. Anæmia 4. Cancer 5. Noma (Canker) 6. Mortification	II. 1.—3. Leucocythæmia. 4. Soft cancer. Epithelioma. Sweeps' cancer. Melanosis. Other kinds of cancer. Polypus (part not stated). Lupus. 6. Bed-sore. Dry gangrene.
ORDER 2.—*Tubercular.* II. 2.—1. Scrofula 2. Tabes Mesenterica 3. Phthisis (Consumption of Lungs) 4. Hydrocephalus	II. 2.—1. Psoas (Lumbar) abscess. White swelling. Cretinism (Goitre). Adenitis, Cellulitis. 2. Tubercular peritonitis. 3. Hæmoptysis. 4. Tubercular meningitis.
CLASS III.—LOCAL DISEASES.	
ORDER 1.—*Nervous System.* III. 1.—1. Cephalitis 2. Apoplexy 3. Paralysis 4. Insanity 5. Chorea 6. Epilepsy 7. Tetanus 8. Convulsions 9. *Brain Diseases,** &c.	III. 1.—1. Phrenitis. Myelitis. 4. Monomania. Fright. Grief. Melancholia. Rage. 6. Hysteria. 8. Laryngismus stridulus. 9. Neuralgia. Ophthalmia. Otitis. Dis. of spinal nerve. Necrencephalus (Ramollissement).

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* Other diseases of the brain, or diseases of the nervous system, *not otherwise distinguished,* are referred to this head. *Mutatis mutandis,* the note applies to the corresponding heads in other orders of this class.

STATISTICAL NOSOLOGY.

TABULAR LIST.	SUPPLEMENTAL LIST.
CLASS III. — (CONTINUED.)	
ORDER 2. — *Organs of Circulation.* III. 2. — 1. Pericarditis* 2. Aneurism 3. *Heart Diseases, &c.*	**III. 2. — 1. Carditis.** **Endocarditis.** **3. Hypertrophia.** **Angina pectoris.** **Syncope.** **Arteritis.** **Phlebitis.** **Hydropericardium.**
ORDER 3. — *Respiratory Organs.* III. 3. — 1. Epistaxis 2. Laryngitis 3. Bronchitis 4. Pleurisy 5. Pneumonia 6. Asthma 7. *Lung Diseases, &c.*	**III. 3. — 2. Œdema glottidis.** **4. Empyema.** **Hydrothorax.** **Diaphragmitis.** **Pneumothorax.** **5. Pulmonary apoplexy.** **6. Grinders' asthma.** **Miners' asthma.** **Emphysema.**
ORDER 4. — *Digestive Organs.* III. 4. — 1. Gastritis 2. Enteritis 3. Peritonitis 4. Ascites 5. Ulceration of Intestines 6. Hernia 7. Ileus 8. Intussusception 9. Stricture of Intestines 10. Fistula 11. *Stomach Diseases, &c.* 12. *Pancreas Disease, &c.* 13. Hepatitis 14. Jaundice 15. *Liver Disease, &c.* 16. *Spleen Disease, &c.*	**III. 4. — 1. Glossitis.** **Stomatitis.** **Pharyngitis.** **Œsophagitis.** **5. Perforation of —** **6. Congenital.** **Femoral.** **Inguinal.** **Scrotal.** **Umbilical.** **Ventral.** **7. Constipation.** **9. Strict. œsophagus.** **11. Dyspepsia.** **Pyrosis.** **Gastralgia.** **Hæmatemesis.** **Melæna.** **Hæmorrhoids.** **14. Gall-stones.** **15. Cirrhosis.**
ORDER 5. — *Urinary Organs.* III. 5. — 1. Nephritis 2. Ischuria 3. Nephria (Bright's Disease) 4. Diabetes 5. Calculus (Gravel, &c.) 6. Cystitis 7. *Kidney Disease, &c.*	**III. 5. — 3. Albuminuria.** **6. Cystirrhœa.** **7. Diuresis.** **Hæmaturia.** **Dis. of prostate.** **Dis. of bladder.**
ORDER 6. — *Generative Organs.* III. 6. — 1. Ovarian Dropsy 2. *Disease of Uterus, &c.*	**III. 6. — 1. Ovarian tumor.** **2. Hysteritis, Metritis (inflammation of womb).** **Uterine tumor.** **Polypus uteri.** **Orchitis.** **Hydrocele.**

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* [See also I. 1. — 20.]

CAUSES OF DEATH.

TABULAR LIST.	SUPPLEMENTAL LIST.
CLASS III.—(CONTINUED.)	
ORDER 7.—*Organs of Locomotion.*	
III. 7.—1. Arthritis	III. 7.—1. Ostitis. Periostitis.
2. *Joint Disease, &c.*	2. Fragilitas ossium. Mollities ossium. Caries. Necrosis. Exostosis. Hip disease. Spine disease.
ORDER 8.—*Integumentary System.*	
III. 8.—1. Phlegmon	III. 8.—1. Abscess (part not stated). Boil. Whitlow.
2. Ulcer	
3. *Skin Diseases, &c.*	3. Roseola. Urticaria. Eczema. Herpes. Pemphigus. Ecthyma. Impetigo. Psoriasis, &c.
CLASS IV.—DEVELOPMENTAL DISEASES.	
ORDER 1.—*Developmental Diseases of Children.*	
IV. 1.—1. Still-born	
2. Premature Birth, and Infantile Debility	IV. 1.—2. Atelectasis.
3. Cyanosis	
4. Spina Bifida	
5. Other Malformations	5. Anus imperforatus. Cleft palate. Idiocy.
6. Teething	
ORDER 2.—*Developmental Diseases of Women.*	
IV. 2.—1. Paramenia	IV. 2.—1. Chlorosis. Climacteria. Menorrhagia.
2. Childbirth. (See Metria I. 1.—9.)	2. Miscarriage. Abortion. Puerperal mania. Puerperal convulsions. Phlegmasia dolens. Cæsarian operation. Extra-uterine fœtation. Flooding. Retention of placenta. Presentation of placenta. Deformed pelvis. Breast abscess.
ORDER 3.—*Developmental Diseases of Old People.*	
IV. 3.—1. Old Age	
ORDER 4.—*Diseases of Nutrition.*	
IV. 4.—Atrophy and Debility	

STATISTICAL NOSOLOGY.

TABULAR LIST.

CLASS V. — VIOLENT DEATHS.

ORDER 1. — *Accident or Negligence.*

V. 1. — 1. Fractures and Contusions . .
2. Wounds . . . . . .
3. Burns and Scalds . . .
4. Poison . . . .
5. Drowning . . . . . .
6. Suffocation . . . . . .
7. Otherwise * . . . . .
8. "Casualty" † . . . . .

ORDER 2. — *Battle.*

ORDER 3. — *Homicide.*

ORDER 4. — *Suicide.*

V. 4. — 1. Wounds . . . . . .
2. Poison . . . . . .
3. Drowning . . . . . .
4. Hanging, ...
5. Otherwise . . . . . .

ORDER 5. — *Execution.*

V. 5. — 1. Hanging . . . . .

Sudden, cause unascertained . .

SUPPLEMENTAL LIST.

V. 1. — 1. Railroad accidents.
5. Lost at sea.
6. Asphyxia.
Strangulation.
7. Exposure.
Cold water.
Frozen.
Heat.
Lightning.
Surgical operation.

NOTE. — Cases of "infantile fever" are classed with typhoid, relapsing, and other continued fevers, under one name, "typhoid fever;" of "rheumatic fever," with "rheumatism;" of "hemorrhage," and "abscess," with the diseases of the part affected, (if that is stated, as it should always be, in the return). As "stricture of the urethra" is almost invariably the result of gonorrhœa, it is classed as I. 2. — 2. All cases of death returned "unknown," or of which the cause is not stated, and cases of "tumor," "inflammation," or "hemorrhage," of which the locality or part affected is not mentioned, are classed as unknown, and therefore not included in the foregoing table of specified causes.

* Manner stated.

† Manner not stated; return therefore imperfect.

FORTY-FIFTH ANNUAL REPORT

OF THE

BOARD OF EDUCATION:

TOGETHER WITH THE

FORTY-FIFTH ANNUAL REPORT

OF THE

SECRETARY OF THE BOARD.

1880-81.

JANUARY, 1882.

BOSTON:
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1882.

STATE BOARD OF EDUCATION, 1882.

EX OFFICIO.

His Excellency JOHN D. LONG, *Governor.*
His Honor BYRON WESTON, *Lieutenant-Governor.*

BY APPOINTMENT.

		TERM EXPIRES.
CHRISTOPHER C. HUSSEY	*Billerica*	May 25, 1882.
Hon. CHARLES B. RICE	*Danvers*	May 25, 1883.
Hon. E. B. STODDARD	*Worcester*	May 25, 1884.
ALONZO A. MINER, D.D.	*Boston*	May 25, 1885.
Col. T. W. HIGGINSON	*Cambridge*	May 25, 1886.
ADMIRAL P. STONE, LL.D.	*Springfield*	May 25, 1887.
Miss ABBY W. MAY	*Boston*	May 25, 1888.
Hon. M. B. WHITNEY	*Westfield*	May 25, 1889.

SECRETARY.

JOHN W. DICKINSON, A.M.	*Newton.*

ASSISTANT SECRETARY AND TREASURER.

C. B. TILLINGHAST	*Boston.*

AGENTS.

GEORGE A. WALTON, A.M.	*Newton.*
ELI A. HUBBARD, A.M.	*Springfield.*
WALTER SMITH	*Boston.*

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ANNUAL REPORT

OF THE

BOARD OF EDUCATION.

ANNUAL REPORT.

In discharge of its duty, the Board of Education herewith submits, to the General Court, its Forty-fifth Annual Report.

In defining the duties of the Board, the law directs that it shall prescribe the form of registers to be used in the schools, and the form of the blanks and inquiries for the returns required to be made by the school committees; that it shall lay before the General Court an abstract of these returns, together with observations upon the condition and efficiency of our system of popular education, and upon the most practicable means of improving and extending it. The Board is made responsible for the general management of the several State normal schools; it is authorized to require returns to be made to itself from all educational institutions supported or aided by the Commonwealth, and is charged with some special responsibilities concerning the instruction of the deaf and dumb. The Board has authority to appoint a secretary and agents, through whose personal labors information is collected and diffused concerning the condition of the schools, the best system of studies, and the best methods of instruction to be used in the public education of the youth of the Commonwealth. It will thus be seen that, as to the common schools, the duty of the Board is fixed by law, and lies almost wholly in the line of gathering and spreading information respecting them. To this end the school registers are kept, the reports of committees and their returns concerning the schools are required to be made, and the abstracts of their returns are printed. The work of the secretary with that of the agents of the Board, and with the published report of the secretary, is to the same general purpose. While this is done, the Board has nothing of direct control over these schools. It raises no money, erects no buildings, employs no teachers, and exercises no authority with respect to organization, discipline, or courses and methods of study. It only inquires after what is done, suggests any thing that is better, and then puts before the public a report of what it has learned and suggested.

This is a distinctive feature of the oversight which the State has provided for its schools. It does no more, by its own officials, than to cause an inspection and report, more or less complete, to be made concerning them. The State appoints by law that the schools, of a certain grade and range of study, shall be opened, and for a designated length of time, and requires that the children, within prescribed limits, shall attend upon them; but it does not itself undertake directly to manage the schools; and, if they fail to reach such a degree of efficiency as might be desired, the State does not attempt, or has not thus far attempted, to do more than to call attention to the failure, and the means for improvement. The care of the schools, their direct management, and the whole practical control of them, rest with the school authorities, and with the people themselves in each city and town. Thus, in the matter of common-school administration, the State itself, through its own officials, does little more than to observe what is done, and cause it to be known as widely as it may, and to make suggestions of improvement.

This characteristic feature in the policy of the Commonwealth in the care of its schools is one of importance to be considered, and kept in mind. It affects the nature of the responsibility that rests with this Board in respect to the efficiency of our schools, and it affects also much more widely the judgment that is to be formed concerning the development thus far of our common-school system.

It is evident that this policy may have its elements both of weakness and of strength. It may allow to be left for a long time untouched many errors and defects in the management of the schools which might be at once removed if the State were to lay its hand directly upon them; and it may seem thus to fail, and may perhaps really fail, in bringing the schools with sufficient promptness to the best attainable results. But, on the other side, in its reliance upon the intelligence and carefulness of the people themselves, in their several localities, and through the necessity of working only through such agencies, it may secure, in a more permanent manner, the gains that are made.

That very great progress has, in some manner, been made during the last forty years, while our public-school system has remained practically unchanged, is not open to any doubt. The schoolhouses throughout the Commonwealth are better. They are constructed with more intelligence with respect to ventilation, light, and warmth, and with respect to comfort, order, and decency. They are furnished with better appliances of every sort for the assistance of the teachers in their work. The oversight and management of the schools by committees and superintendents are exercised with more care and more skill. The provision made for the support of the schools by the several municipalities has grown more liberal; and the teachers themselves, upon whom the efficiency of the schools chiefly depends, are more adequately paid, more carefully chosen, and, as a general thing, more thoroughly fitted for the work they have to do. If much still remains to be desired, yet very much has certainly been gained. It is not meant to be suggested that all this progress is due to the efforts of persons officially connected with our system of education on the part of the State. The age itself has been one of progress, with a great turning of thought in many ways, on the methods and means and the necessity of public instruction. But, taking this whole period together, it is believed that the State officials, and especially the secretaries and agents of the Board of Education, have had a very important share in the advancement that has been made. By the conferences they have held with teachers and superintendents and committees, the addresses they have given, and the reports they have made touching all matters connected with our schools, they have greatly assisted in all this progress. It may be that this assistance has not been in reality the less effective for its being separated from any power of direct interference with the schools themselves. There has been put forth, at any rate, on the part of the State, a systematic and continued effort to strengthen and keep steadily in action those general agencies which make toward improvement, in all matters requiring wide popular discernment and co-operation. In such terms may be stated, comprehensively, the larger part of what the State has undertaken to do directly and through its officers. And, with a government like ours, the importance of intelligent and steadily sustained effort in this direction is not likely to be over-estimated.

It should be borne in mind that this variety of oversight which the State has had upon its school system has not been without some point and stringency in its applications. No State official interferes directly, indeed, with the management of any of the common schools, to cause this or that thing to be done or omitted. But he does interpose to get information concerning what is done or left undone, and to cause these things — so discovered — to be held up widely and steadily to view. The giving of the main facts relative to the schools and their work in any locality, as they are called for, is not left to the choice of any local officer, but it is required by law. Great care has been taken in the framing of these inquiries, that are sent to the local committees concerning the schools; and the steady publicity that is given year by year to the returns received becomes a very important means of securing carefulness in the management of the schools themselves in every locality. The results, to some extent, of what is done are made known; and there is something like a public and official record of success, or of failure. It may be granted that this public record concerning the schools, which the Board has been able to cause to be made from year to year, is far less complete than it ought to be; and that the effect of it, in calling attention to the fact and conditions of success or of failure, and in giving incitement to progress, is much less than it should be. The remedy may be not in throwing aside the plan, but in causing it to be more vigorously carried out.

We are thus brought to the consideration of a topic which has been presented with urgency in former reports; that is, the desirableness of providing for a more efficient supervision of the schools, throughout the whole State, than now exists. It is not needful to repeat the arguments that have been set forth at length on other occasions to exhibit the necessity of such a provision. The oversight referred to would be of a kind to offer no interference whatever with the full control of the schools by the local boards, and to involve thus no new departure from that line of State policy which has just been sketched. The Board does not ask for officials to be intrusted with direct management or administration, but officials to carry on further and more fully the work, now in part undertaken, of diffusing knowledge concerning the best modes of management and of collecting information respecting the actual condition of the schools.

To this end the Board earnestly requests of the General Court that it may be enabled to employ at least two additional agents. This is not regarded as by any means an adequate provision for all the requirements of the public service in this department. The Board adheres to its judgment upon this matter, as expressed on other occasions, whether in its own reports or in those of its secretary. But the request is brought forward in its present form, in the hope that it may the more readily and certainly meet with favorable consideration. The opinion held by the Board, concerning the great importance of some enlargement of the working force at its disposal, is one that has been reached with entire agreement, and with great strength of belief, on the part of all its members.

It is to be considered in this connection, that the agents of the Board, as assistants of the secretary, aid in conducting the teachers' institutes, and that they attend also the meetings of the various associations of teachers, superintendents, and committees, wherever they may be held. They have thus large opportunities for acquaintance and communication with the persons directly engaged in the work of public instruction; and they are able, on these occasions, both to gather up, and to distribute in the most effective manner, the fruits of experience and reflection relative to the ordering of all school affairs. The institutes especially are of the greatest value in this respect. Twenty-one have been held during the season now closing, and they have been attended by 2,276 teachers. The interest manifested in them by the teachers, and also by the public at large, does not abate, but exhibits rather a continued increase. It is greatly to be desired that a still larger number of these meetings might be held, and that their length might be, in some cases, increased. And this might be possible, as it is not now, with the additional agents for whom we desire that provision may be made.

These agents visit also, to such extent as they are able, the schools themselves throughout the State; but the work is by far too large for them. Three years ago, by the desire and with the co-operation of the committees, some beginning was made, in one county, of a systematic examination of the schools with respect to attainments actually made by the pupils, and with a record of the results arrived at arranged in form for general use. The work attracted attention throughout the whole country, and its importance was everywhere recognized by men acquainted with educational affairs. Something further has since been attempted in the same line, of which fuller mention will be made in the report of the secretary. But our means will allow of none but fragmentary and imperfect work in this direction.

Similar examinations, with such improvements as might be made upon them, ought to be carried shortly over the whole State. We should thus begin to be getting in hand, with something of definiteness and certainty, that material of fact respecting the condition and effective capacity of our schools, which is not now at hand in our Commonwealth; if, indeed, any thing like it is to be found in the whole country. This material of clear fact is needed as the basis of the most judicious legislation. It is required as the means of testing finally the value of particular theories, methods, or appliances. And, altogether, it may be doubted whether any very great further advance can be made in our educational system until this record of things actually accomplished is in some better degree made up and set before us. With the two additional agents whom we have asked for, something further could be hopefully undertaken in this line, while the work now carried on in other directions by the secretary and agents would be greatly furthered.

It would not be impossible, as we believe, to find the persons thoroughly qualified for the positions proposed thus to be filled. And, if the General Court shall judge it expedient to provide the means required, the Board will exercise the greatest carefulness to the end that any appointments it may make shall at once be recognized as befitting the importance of the work now waiting to be done.

In conducting the teachers' institutes, the secretary and agents have had assistance, during the season just closing, from several teachers in the normal schools, and from certain other gentlemen whose services have been secured for that purpose.

The secretary and agents themselves have wrought together with diligence and skill upon the over-abundant labors opening before them. The reports furnished each year by the secretary contain also much of valuable suggestion for teachers and committees; and they are made use of widely by many others who are concerned in the promotion of popular education. It may be observed here, moreover, that the preparation of these reports, with the tables of statistics and other documents usually printed with them, involves of itself no small amount of labor; and it has to do thus with the existing necessity for an additional force with which to enter effectively upon the larger labors already referred to.

The normal schools, which are distinctly committed to the charge of the Board, and for which alone it is directly responsible, have received careful attention during the year. It is certain, we think, that their influence is felt to an increasing extent in the elevation of the standard of capacity and fitness in preparation of those who are to enter upon the work of instruction in our public schools. It is to be wished that larger numbers of these persons might share directly in the advantages which these training-schools in the art of teaching are able to afford.

The Board has observed with satisfaction the signs of continued popular interest concerning the moral influences put forth by our schools upon the children and youth assembled in them. In the report of last year, it was recommended that the school committees should be required by law to make special mention, in their reports, of the condition in this respect of each school under their care. This matter has been since in part provided for by the Board itself, through the inserting of questions directed to that point in its form of inquiries addressed each year to the committees. Another recommendation of last year had respect to a legal requirement for the holding of stated meetings of the committees or superintendents with the teachers in each town or city, at which meetings the purpose of the State concerning the moral training of its youth, as set forth in the constitution and the laws, might be distinctly explained and enforced, with the taking of practical counsel in this respect, and with reference also to many other matters effecting the welfare of the schools. If it be not advisable to provide any legal enactment bearing upon this subject, it will remain true that such meetings are on many accounts of great importance; and that no committee neglecting to hold them can be regarded as discharging fully its duty towards the schools, unless, indeed, a most unusual degree of care is exercised to provide in other ways for the same full and common understanding among the teachers concerning the public obligations resting upon them.

And it is always to be borne in mind, that for whatever relates to the wise ordering of the schools, whether with respect to morals or to any other matter of public interest, the people themselves in any locality can cause to be done nearly every thing that could be in any manner practicable. If they will take a sufficient care upon themselves, no further legislation is needed. They can observe what is done both by teachers and committees, and they can interpose as they may see fit, with decisive effect. And, in this matter of a sound moral influence to be exerted through the schools, a very small number of persons, even, in most communities, can make sure that it is kept in mind at least by those who are directly concerned with the management of the schools.

The school-laws as revised will be published in pamphlet form, and sent to all the committees of the towns, together with such comments and explanations as are necessary to a right understanding of their spirit and intent.

Reports in detail from the visitors of the several normal schools, and the report of the secretary of the Board, with accompanying documents and tables of statistics, are also herewith submitted.

JOHN D. LONG, *Ex officio.*
BYRON WESTON, *Ex officio.*
CHRISTOPHER C. HUSSEY.
CHARLES B. RICE.
ELIJAH B. STODDARD.
ALONZO A. MINER.
THOMAS WENTWORTH HIGGINSON.
ADMIRAL P. STONE.
ABBY W. MAY.
MILTON B. WHITNEY.

BOSTON, Dec. 14, 1881.

REPORTS OF VISITORS

TO THE

NORMAL SCHOOLS.

BRIDGEWATER.

The Bridgewater school has had a prosperous year, fully sustaining its previous reputation. That the services of its teachers have been, in most cases, of such long continuance, should not be allowed to produce indifference to their value, or to the testimony thus furnished to the wisdom of as much permanence everywhere, in the relation of teacher and pupil, as is attainable. The general atmosphere of the school, and the average success of its graduates, may justly be spoken of as matter of congratulation to its patrons and the State.

There has been no change in the year past in the corps of teachers, which consists of Albert G. Boyden, A.M., principal; George H. Martin, A.M., Franz H. Kirmayer, Arthur C. Boyden, A.M., Cyrus A. Cole, Eliza B. Woodward, Mary H. Leonard, Isabelle S. Horne, Clara C. Prince, assistants; all of whom have taught successfully in public schools in addition to their thorough normal training and experience.

The school is a normal training-school. It has had a steady growth in prosperity and usefulness from the time of its organization in 1840.

Its courses of study, and methods of teaching and training, which are adapted to the wants of teachers in all grades of schools, are the outcome of many years of thought, observation, and practice in the training of teachers.

The pupils are led through a careful analysis of each study in the course, to know what should be taught, and the logical order of the topics, both in the elementary and in the advanced portions of the subject.

They are taught how to teach each part of the subject in its proper relation to the other parts and to the whole.

They are trained in the method of teaching by practice throughout the course, in teaching the topics to their classmates, who are actual pupils, with the criticism of their fellow-students and the normal teachers.

After acquiring the method, they learn the principles which determine the method by a careful study of the mind.

They observe the application of these principles in the teaching of primary and grammar-school pupils in the school of observation, which includes three grades of the public schools.

Not only the art and science of teaching, in application to the different branches of the courses of study, are learned, but school organization and school government are carefully studied.

The knowledge of the subject to be taught, the method of teaching, and the principles of education are thus thoroughly associated in the mind of the pupil, and he acquires the ability to lay out and to execute the work in the conduct of his own school.

The principal was granted a leave of absence for six weeks in the early part of the spring term. A portion of this time was spent by him in observing other schools and school-buildings, for the purpose of perfecting the plans for the new chemical and physical laboratories. The larger part of the summer vacation he devoted to superintending the erection of this new building.

The statistics of the school for the year ending July 1, 1881, are as follows: —

TERMS BEGAN SEPT. 1, 1880, AND FEB. 9, 1881.	FIRST TERM.			SECOND TERM			FOR THE YEAR.		
	Gentlemen.	Ladies.	Total.	Gentlemen.	Ladies.	Total.	Gentlemen.	Ladies.	Total.
Members . .	43	109	152	41	94	135	50	124	174
Entering classes .	7	40	47	7	14	21	14	54	68
Graduates . .	6	21	27	12	13	25	18	34	52
Received State aid .	12	13	25	12	10	22	15	17	32

The number admitted Sept. 7, 1881, was 65, making the number in attendance at that date 168.

The whole number of admissions to the school to July, 1881, has been 2,721: gentlemen, 913; ladies, 1,808.

The whole number of graduates has been 1,678: gentlemen, 584; ladies, 1,094. The whole number from the four-years' course has been 47: gentlemen, 30; ladies, 17.

Of the number belonging to the school for the year, Plymouth County sent

47; Bristol, 31; Norfolk, 30; Middlesex, 27; Barnstable, 8; Suffolk, 7; Essex, 5· Worcester, 4; Berkshire, 1; the State of Maine, 5; New Hampshire, 5; Pennsylvania, 2; Vermont, Minnesota, each 1. Totals: Massachusetts, 160; other States, 14.

The average age of those admitted during the year is 19 years 9 months: of the gentlemen, 20 years, 2 months; of the ladies, 19 years.

Occupation of parents: farmers, 16; mechanics, 25; traders, 6; teachers, sea-captains, each 3; coachmen, superintendents, manufacturers, each 2; clergyman, clerk, draughtsman, book-keeper, state constable, painter, sailmaker, seaman, each 1. Total, 68.

Of the 68 candidates received, there came from high schools, 42; from grammar schools, 12; from academies and private schools, 5; from district schools, 4; from colleges, 4; from normal school, 1.

The number of students from college pursuing a special course during the year, has been 3; the number pursuing the four-years' course has been 43: gentlemen, 21; ladies, 22. The number taking the two-years' course, with some additional studies, has been 15

Of the 52 graduates for the year, 10 were from the four-years' course. Two of these graduates are continuing their studies in the school. Two of them for good reasons are not teaching, three are teaching out of the State; the others are teaching in Massachusetts in district, grammar, and high schools.

Gratifying reports of the success of the graduates in their schools are frequently received. These reports show that the graduates, generally, are successfully applying the principles taught them in the Normal School. Occasionally one fails from a want of natural aptitude for the work. The question of the pupil-teacher's fitness for the work cannot be positively decided in every case until he is placed in charge of his own school. It should be remembered that the young teacher is subjected to a severe test upon entering an ungraded district school, — the combination of a primary, an intermediate, and a grammar school,— with the most scanty means for teaching, with no course of study marked out, and with very little aid from supervision. The wonder is that more do not fail under such conditions.

The number of applications for graduates after the supply is exhausted is further evidence of the estimation in which they are held. Many calls come from prominent positions with good salaries, for graduates of ability and experience, showing that young teachers who have an aptitude and love for the work will find graduation from the school a good introduction to these positions.

The new building for laboratories was begun in June, and was ready for occupancy in September. It is a handsome structure thirty-two by sixty-four feet, two stories in height, standing on the south side of the schoolhouse, and connected with the first and second stories of the main building by a porch. It contains four rooms, each thirty feet square, and the porch contains two rooms for teachers' laboratories.

The rooms on the lower floor are used for physical laboratories, one for the elementary course, the other for the advanced, with microscopic work and projection. The rooms in the upper story are used for chemical laboratories, one for the elementary course, the other for analytical work, qualitative and quantitative.

These rooms are furnished with the best approved modern appliances for teaching how to study and teach physics and chemistry. Each student has a place at the tables, and performs the experiments, and is taught how to make and use simple, inexpensive apparatus such as he can secure for use in his own school.

Rooms in the main building have been converted into laboratories for the study of natural history. These improvements have greatly increased the efficiency of the teaching and training, and the students are enthusiastic in the use of them.

The last legislature appropriated a sum not exceeding eight thousand dollars, for the erection and equipment of this new building. The secretary of the Board of Education and the visitors of the school were appointed by the board a building committee with full powers. This committee appointed the principal of the school superintendent of the building and furnishing, and agent for making purchases.

The working plans and specifications were made by George Hayward of Bridgewater. The excavation and stone-work were done by John Withom of Middleborough. Charles Wilson of Quincy furnished the granite. Samuel L. Ryder of West Bridgewater was the contractor for the carpenter and mason work and painting. The steam-heating and gas apparatus, and plumbing, were put up by the Walworth Manufacturing Company of Boston. J. W. Griggs of Boston furnished the slate blackboards.

All the work has been well done. The summary of bills paid for the work is as follows: —

Plans and specifications	$60 00
Excavations and stone-work	896 42
Granite	146 10
Carpenter and mason and painting (contract)	6,181 00
Carpenter and mason and painting (extra)	172 44
Steam and gas apparatus, and plumbing	880 13
Slate blackboards	158 55
Express	5 36
Total	$8,000 00

All of which has been accounted for by the bills and receipts presented to the Building Committee and State Auditor.

These changes in the buildings have made it necessary to have some additional furniture, — new chairs and settees for the class-rooms, and tables for the laboratories in natural history. A small appropriation for this purpose is very much needed.

In thus alluding to a further appropriation, the visitors wish to speak of the generous action of the legislature of last year. The amount expended in additions and changes is, we fully believe, a profitable investment, and is already making returns in the fuller adaptation of the school buildings and furnishings to the ever-growing needs of education, and in the increased impetus in the work of both teachers and pupils.

C. C. HUSSEY, *Visitor.*

FRAMINGHAM.

The school at Framingham is in a very satisfactory condition. The teachers are working with great zeal, and with good results. There has been no change among them, except that a permanent appointment has been made in the department of history and literature, where last year there was a temporary teacher.

We have every reason to commend also the excellent spirit and good and faithful work of the scholars throughout the school. There seems no fault to be found in any of these respects. And if we had continued cause to regret that scholars, desiring to enter our normal schools, are not more fully prepared to avail themselves of professional training, we think there is some improvement in this most important direction.

The number of scholars belonging during the year was 112.

Whole Number Admitted.

September, 1880	23
February, 1881	9
Total	32

Whole Number of Graduates.

January 20	9
June 29	24
Total	33

Of the class graduating in June, seven belonged to the advanced class.

Twenty of the graduates are now teaching; nineteen in Massachusetts.

Their success, so far as we know of it, is generally very good. We believe they endeavor conscientiously to put into practice the principles and methods learned at the school; and that they succeed in this quite as fully as can be expected, in view of the ney are often obliged to conform to plans and rules nt with improved methods of teaching. Five of the re taking the advanced course.

e been favored during the year with lectures by tkinson, on Political Economy and on English Lit- Rev. A. D. Mayo, on The New Education; by on Moral Training; by Miss Turner, on Reading; lter Smith, on Art Education.

el Training-School deserves very high praise. The nt to it are not above the average in ability and so that a fair opportunity is there given to show ugh training may do for the scholars in our common he good results gained at Framingham make us ten the day when all children will be under the care ned teachers. Then the money, time, and strength ur great system of education, will be used to the advantage. This can never be the case while so portion of the teachers are allowed to gain their pro- nowledge, often in the end but very partial, in the of experience.

ropriation of last winter provided for some changes in the system of water-supply and drainage. These nade with the results expected. All is now in good n that department. The buildings are in positive painting, for which, and for the renewing of the ackboards, we ask a proper appropriation.

Respectfully submitted.

ABBY W. MAY,
A. A. MINER,
Visitors.

31.

SALEM.

We are able, to report that this school continues under the same management, and without change in its body of instructors. The fact that the school has been for so long a time under the direction of the present principal, and that the great value of his services has been more than once before spoken of, ought not to lead us to omit altogether from these reports some mention of our continued sense of their worth. The marks of his care respecting all details of administration, and of his accomplishment in all that belongs to the work of a teacher, appear on every hand.

During the past year, more than the usual attention has been given to the subject of drawing; the senior classes, especially, have manifested great interest in the subject, and have made excellent progress in their work.

In the department of physics and chemistry a large amount of practical and intelligent work has been accomplished. Under the admirable instruction of Professor Osbun, whose method of teaching has attracted wide and favorable attention, the pupils have learned the art of observing, of stating in spoken and written language what they have observed, and of drawing conclusions from their observations. They have been required to repeat experiments performed by the teacher, to manufacture simple apparatus with which to present and illustrate subjects assigned to them for investigation, and in all respects to prepare for and conduct exercises as they would if they were in charge of schools. The results of this mode of instruction have been highly gratifying.

The school is steadily pursuing a thorough and systematic course in the study of the English language, including weekly exercises in practical composition, and the application of the principles of rhetoric.

The senior class, four days in each week, give lessons on

atically arranged, to classes of children drawn
he city schools. These lessons are found to be
the children, and very useful to those who give

s of the school for the year are as follows: —

number of pupils belonging to the school during the year

er, Essex County sent 164; Middlesex, 63; Suffolk, 8;
stol, Norfolk, and Plymouth, 1 each. The State of Maine
pshire, 8; New York, 2; New Jersey, 2; Ohio, 1; Texas,
, 1.

resent during the term which closed Jan. 25, 1881, was
present during the term which closed June 28, 1881, was

nber of pupils that have been members of the school since
tember, 1854, is 2,560.

r graduated from the regular course Jan. 25, 1881, was
raduated from the same course June 28, 1881, was 35.

ber of graduates of the school (52 classes) is 1,169.

teaching drawing in high schools were awarded Jan. 25,
to 36, June 28, 1881.

r that entered the school Sept. 7, 1880, was 67; the num-
eb. 8, 1881, was 36.

e age of the class admitted Sept. 7, 1880, was 17.67
s admitted Feb. 8, 1881, 18.54 years.

of the pupils admitted during the year are, by occupa-
Farmers, 23; manufacturers, 20; mechanics, 20; traders,
iscellaneous, 23.

r that received State aid during the term ending Jan. 25,
ring the term ending June 28, 1881, 49. The whole num-
pils that received State aid was 61.

r that received aid from the Bowditch Fund during the
; during the second term, 38. The number of different
was 56.

ss admitted Sept. 7, 1880, 10 had taught school; of the
b. 8, 1881, 8 had taught.

r of pupils connected with each of the classes during the
year was as follows: Special, 5; advanced class, 7; class
lass B, 57; class C, 53; class D, 71.

uring the second term: Special, 8; advanced, 6; class A,
class C, 60; class D, 48.

pupils admitted during the year, Lowell sent 11; Salem,
6; Georgetown and Gloucester, 5 each; Danvers and
; Lynn and Somerville, 3 each; Beverly, Chelsea, East
Groveland, Marblehead, Peabody, Rockport, Wenham, and
Andover, Billerica, Boston, Bradford, Easton, Hamilton,
rose, Merrimac, Nahant, Newburyport, North Scituate,

Pepperell, Saugus Centre, Stoneham, Swampscott, Tewksbury, Topsfield, Wakefield, Waltham, Weston, and Winchendon, 1 each. The State of Maine sent 1; New Hampshire, 6; New York, 2; Ohio, 1; and Wisconsin, 1.

During the year, fifty-four books were added to the general library by purchase, and twenty-five by gift.

The text-book library was increased by the purchase of seventy-six books and by the gift of two hundred and seventy-two books.

Nearly all the graduates of the school find opportunity to teach; and they carry into their labors, to a very large extent, along with other fruits of their training, a thorough determination to make their own work creditable and useful to the Commonwealth, through whose wise liberality these normal schools are maintained.

JOHN W. DICKINSON,
CHAS. B. RICE,
C. C. HUSSEY,
Visitors of the School.

WESTFIELD.

---

s of the Normal School submit to the Board the
rt: —

rs and pupils of this school seem to be working
together, to secure the ends for which it was
They are laboring earnestly not only to maintain,
to increase, the high reputation the school has in
ed.

es have taken place the past year in the corps of

r, the teacher of drawing, resigned her place at
he summer term, after having given to the school
uccessful service. She was held in high esteem
for her cheerful temper, her faithfulness, and her
her. Those who have been under her instruction
nember with what devotion she performed the
office, and with how much sympathy she sought
ies to encourage and aid them in the performance
fficult tasks.

made vacant by the resignation of Miss Spalter
d by the appointment of Miss Clara Wilson, a
the Normal Art School, Boston. Miss Wilson
department great enthusiasm, and a high reputa-
ng and skill. What she has already accomplished
rance of success.

ars the school has been in need of an additional
Walter Barrows, a graduate of the School of
oston, has been appointed to supply this need.
entered upon the discharge of his duties as
1 of the present year. His thorough prepara-
epartment he is to fill will make him a valuable
ssary addition to the teaching force of the school.
the remainder of the present year will be paid

from funds saved for other objects. If he is permanently retained, an addition must be made to the amount annually appropriated to the support of the school.

The boarding-house has been thoroughly painted during the year, and no extensive repairs on the school-building are at present required.

The sewage of the boarding-house is now discharged through the town brook, which hitherto has been allowed to be used for the purpose, and as a substitute for a sewer. But a suit in equity has been commenced against various parties now using the brook as a sewer, and it is not impossible that injunctions prohibiting such use may be issued. If so, a considerable outlay will be required to secure a substitute for the present sewer.

Of the graduates of last year, all except three are known to be engaged in teaching in the public schools. Two of the three have been unable to teach, on account of illness; from one no report has yet been received. The other members of the two graduating classes of the year have all taught.

Criticisms of their work have been requested, but thus far no unfavorable reports have been returned. The following, among the testimonials received during the past six months, will indicate their general character: "She is doing better than you predicted;" "Your teachers here are all doing well;" "They greatly honor your school." Another speaks in the highest terms of the skill the graduate has shown in organizing and conducting her school. Another commends the teacher for the clear ideas possessed of what should be done.

By the reports sent in, it appears that school committees are more inclined than formerly to allow the graduates to use their own methods of teaching, holding them responsible only for results.

The school has been favored the past year with visits and addresses by the secretary and agents of the Board of Education. Professor Walter Smith has given the school two valuable lectures. Professor Harvey Porter of Beirut, and Professor H. H. Rusby of Franklin, N. J., have made valuable donations to the collections in natural history.

I cannot close this report without making special mention of the relations which my distinguished associate on the visiting board of the school has for a long time held to its management and success.

years Dr. William Rice has been a visitor of the
ring his long term of faithful service he has
time nor labor in contributing what he could to
During his connection with the school the
iouse has been twice enlarged; a large and com-
ng-house has been built; the attendance upon
been largely increased and the quality of its
iproved.

ounsels and his never-failing sympathy, Dr. Rice
eared himself to teachers and pupils; and they,
community, deeply feel the loss they have ex-
resignation. They will follow him in his retire-
wishes for his health and happiness.

tistics of the school are appended.

Members.

. . . . 109
. . . . 11
. . . . — 120

, Hampden County sent 58; Hampshire, 10; Berkshire,
Vorcester, 5; Essex, 3; Middlesex, 1; Barnstable, 1; New
onnecticut, 12; New York, 3; New Jersey, 1; Ohio, 2;
ia, 2. Total, 120.

Graduates.

. . . . 8
. . . . 0
. . . . — 8

. . . . 15
. . . . 2
. . . . — 17

. . . . 23
. . . . 2
. . . . — 25

Entering Class.

. . . . 41
. . . . 3
. . . . — 44

. . . . 13
. . . . 1
. . . . — 14

Whole number: —

Ladies	54	
Gentlemen	4	
Total	—	58

Average age: —

Ladies	18 years 4 months
Gentlemen	19 " 2 "
General average	18 " 9 "

Occupation of parents: Mechanics, 6; farmers, 20; professional men, 6; manufacturers, 5; merchants, 3; laborers, 2; peddlers, 2; contractors, 2; hotel-keepers, 2; miscellaneous, 5; unknown, 5. Total, 58.

Recipients of State Aid.

January, 1881: —

Ladies	21	
Gentlemen	6	
Total	—	27

June, 1881: —

Ladies	25	
Gentlemen	9	
Total	—	34

Whole number: —

Ladies	46	
Gentlemen	15	
Total	—	61

M. B. WHITNEY, *Visitor.*

WESTFIELD, Dec. 10, 1881.

WORCESTER.

---

of this school finds good reason to speak with
satisfaction of its work during the past year.
ing zeal and by unstinted labor, it has faithfully
luty to the Commonwealth.

eachers has been increased and strengthened by
d much-needed addition: Miss Ellen M. Haskell,
pal of Wheaton Female Seminary, and later a
Worcester High School, was secured for the
and began her work in September.

place made vacant some time since by the resig-
Foster, and gives to the school an adequate and
of instructors; every one mature, experienced,
all acting together in a spirit of confidence and

of "apprenticeship" in the public schools of
igned to secure to the pupils during their course
ce in teaching and managing children under con-
g real responsibility, has been extended so as to
rably longer term of service than formerly.

f their first year in the Normal School, students
as apprentices for six months, or half a school-
e grades of school, two primary and one gram-
n return to the Normal School for a second year
e receiving their diplomas, thus lengthening by
period of their pupilage, making it two years
ead of two years; and at the same time acquaint-
more thoroughly with the practical details, the
es and difficulties, of the teacher's work. Almost
lect this longer course, and so graduate with the
nore maturity and readier skill than they could
n.

constantly increasing demand for graduates as teachers, and almost uniform testimony from those who employ them, that their instruction and management are highly successful and satisfactory. There is also ample evidence that their success is due to the instruction and training received at the Normal School. They are slowly but surely establishing, in the communities where they teach, a higher standard in the spirit and methods of school-teaching; and this not by unseemly agitation and discussion, but by quietly doing their work as it ought to be done.

The school-building has been in use with no considerable alterations or repairs for nearly eight years. It proves to be suited to the needs of the school in almost every particular, and, if it were to be rebuilt to-day, could not be essentially changed in plan for the better. There is now, however, pressing need of some repairs, — chiefly of the roof, wood-work, blackboards, and water-closets, — estimates for which will be laid before the legislature, and should receive prompt attention.

The school has been favored during the year with addresses and lectures of interest and value as follows: —

Anniversary address, by Rev. Francis Tiffany of West Newton; "Learning and Knowing," by Mr. Eli A. Hubbard of Springfield; "Political Economy," by Professor William P. Atkinson of Boston; "Drawing in the Public Schools," by Professor Walter Smith of Boston; "The Flora of the Tropics," by Capt. V. P. Parkhurst of East Templeton; "Teaching," by James A. McLellan, LL.D., of Ottawa, Ont.; "Typical Mollusks," by Professor F. G. Sanborn of Andover.

The grounds have never been fenced; and a special appropriation for a suitable fence should be recommended by this Board.

During the year, the Rev. William Rice, D.D., of Springfield, has resigned as a member of the Board of Education. He has long been a visitor of this school.

The teachers unite with me in profound regret that his valuable advice and genial friendship will no longer serve to maintain a school which he truly loved.

STATISTICS.

1. Number of pupils belonging to the school during the year: —

Gentlemen	5	
Ladies	162	
Total		167

ring classes: —

. . . . 2
. . . . 14
. . . . —— 16

. . . . 2
. . . . 35
. . . . —— 37

for the year, 53.

luating classes : —

ie.

. . . . 2
. . . . 14
. . . . —— 16

year's graduates now teaching, 20, or 100 per cent.

year's graduates teaching in Massachusetts, 19, or 95 per

g statements, from school officers having over-
aduates of 1880, furnish the best answer I can
stion, "With what success are they teaching?"

the average."

make us wish to retain her services as long as we can."

ve the average teacher."

iole, above the average of our teachers."

iole, superior to most that have come under our notice."

iost conscientious worker, and keeps up a perpetual inter-

o little physical energy, but has a sweet disposition that
ble teacher."

ays cheerful and prompt at her work. I specially like all
."

l testimony, of which the foregoing extracts give
appears that our graduates of 1880 are teaching
ess.

aries per month of our graduates, going back only to the
first class graduated here, are as follows : —

ates, $85·00.

uates, $48 05.

lence as I have been able to obtain from graduates them-
those who have official charge of their schools, I conclude
es taught in Normal School" furnish the basis and guide

The following statistics, though not called for by the secretary, have usually been published. Of the pupils admitted there are: —

From Franklin County	1
Middlesex "	1
Hampden "	1
Worcester "	44
Connecticut	2
New Hampshire	2
Vermont	2

Average age of those admitted: —

In February	17 years 10 months.
September	18 " 3 "

Occupation of parents: —

Mechanics	22
Farmers	7
Unclassified	4
Agents	3
Laborers	3
Foremen	2
Grocers	2
Gardeners	2
Clergyman	1
Coachman	1
Fireman	1
Janitor	1
Housekeeper	1
Nurse	1
Paper-hanger	1
Stable-keeper	1

Number receiving State aid: —

Fall and winter term, 1880–81	12
Spring and summer, 1881	13

Additions to the library: —

Text-books	137	
Reference-books	101	
Total		238

Number of volumes in library: —

Text-books	2,985	
Reference-books	1,560	
Total		4,545

E. B. STODDARD,
Visitor.

DEC. 1, 1881.

EIGHTH ANNUAL REPORT

OF

THE BOARD OF VISITORS

OF THE

HUSETTS NORMAL ART SCHOOL.

1882.

HUSETTS NORMAL ART SCHOOL,

BOSTON.

---

of the Normal Art School respectfully submit
nnual Report, covering the year ending June 30,

ccupancy of the Deacon House was determined
erstood to be doubtful whether the heating-appa-
rove to be adequate during the severity of the
Experience has made it clear that it was not
me portions of it having proved defective, it was
construct a new boiler on an enlarged scale.
eement embodied in the lease of the premises, the
fifteen per cent of the cost as additional annual
ovided, however, that this addition shall in no
our hundred dollars ($400). It is is still a ques-
he radiators are sufficient in certain parts of the
ould it be necessary to enlarge these, or add
pense will be still further increased. The cost
hteen hundred dollars ($1,800). The addition,
unts to two hundred and seventy dollars ($270)
um must be provided for in future appropriations.
sum for the current financial year is one hundred
ollars ($120), for which sufficient funds are in

of the facts connected with the evening school
lusion that its continuance was not essential to
hich the expenditures are made. Of the seventy-
he evening classes, more than one-half were from
uld be equally well provided for, without addi-
in the city evening schools. The remainder were
eighborhood of Boston, and could generally find
is probable, in the places of their residence. At

all events, as but seven of the remainder were teachers, the State could hardly be justified in the outlay which the support of the evening school required. It was, therefore, discontinued.

The statistics for the year are as follows: —

Whole number belonging to school, 294.

Day Classes.

Ladies	179	
Gentlemen	43	
Total		222

Evening Classes.

Ladies	32	
Gentlemen	40	
Total		72

Summary.

Day classes	222	
Evening classes	72	
Total		294

Of students entering during the year: —

Suffolk County furnished	125		
Middlesex County "	35		
Norfolk County "	16		
Worcester County "	4		
Essex County "	4		
Bristol County "	2		
Barnstable County "	1		
Franklin County "	1		
Hampshire County "	1		
Hampden County "	1		
		190	
Ohio "	2		
Michigan "	1		
New Hampshire "	1		
Connecticut "	1		
		5	
Total			195

Number in the entering class: —

Day Classes.

Ladies	101	
Gentlemen	29	
Total		130

Evening Classes.

. . . . 29
. . . . 36
. . . . —— 65
l summary 195

ose admitted :—

Day Classes.

. . . . 20 years, 3 months
. . . . 18 " 11 "
verage . . . . 19 " 11 "

Evening Classes.

. . . . 24 years, 10 months
. . . . 24 " 4 "
average . . . . 24 " 6 "

parents : Teachers, 18; retired, 13; machinists, 11; doc-
urers, 7; book-keepers, 6; farmers, 8; clerks, 6; director of
der, 1; pattern-maker, 1; watchmaker, 1; merchants, 6;
nts, 7; cashier, 1; treasurer, 1; druggists, 4; dentists, 3;
glass-stainer, 1; compositor, 1; oil-merchant, 1; tailors,
lisher, 1; car-builder, 1; solar finisher, 1; city missionary,
ewellers, 5; sea-captain, 1; printer, 1; actors, 2; writer, 1;
piano-polisher, 1; artist, 1; hardware, 1; banker, 1; elec-
s, 1; electrical light, 1; boots and shoes, 4; lawyers, 3;
echanical engineer, 1; builders, 3; reporter, 1; agent, 1;
ne-cutters, 3; stucco-worker, 1; lithographer, 1; mason,
ing, 1; contractor, 1; United States Navy, 1; housekeepers,
4; wood-carver, 1; ship-builder, 1. Total given, 165; not
95.

Number obtaining Certificates.

	Ladies.	Gentlemen.	Total.
. . . . . .	21	7	28
. . . . . .	8	5	13
. . . . . .	3	3	6
. . . . . .	5	2	7
	37	17	54

as at graduation as art masters and art mistresses :—
. . . . 3
. . . . 2
. . . . — 5

There had been some things in the conduct of the school which made certain changes in its *personnel* highly desirable. At the close of the school-year some changes were made. Others arose voluntarily. Mr. Vonnoh resigned that he might study art abroad. Miss Mary Carter, to the regret of the Board of Visitors, surrendered her situation to return to her native land. Miss Mercy A. Bailey, who had devoted many years to the same and kindred work, succeeded to Miss Carter's labors, and is proving faithful and successful.

Mr. Vonnoh's duties were devolved upon Mr. A. H. Munsell, who is exhibiting much enthusiasm in his work. In several respects his methods are original, and secure the closest attention of his class. In addition to his position as instructor, he holds also that of curator. So far from these duties being incompatible, the arrangement is proving eminently satisfactory; not only are the duties of the office of curator promptly discharged, but certain important arrearages in the work belonging to the office are being brought up. The new arrangement in this respect has also greatly contributed to the good order of the school. The curator is at his office some time before the school-sessions begin; the pupils call for whatever books, copies, or models they will need during the session. In case of any important omission, the teacher goes to the office, and supplies the deficiency. Thus the disorder of the former arrangement is entirely avoided. Not only is no practical inconvenience experienced from the closing of the office during the afternoons when the curator is giving his lectures, but it is practically closed to the school during the forenoons as well, leaving the curator uninterrupted in the discharge of his manifold duties. Both economy and the general welfare of the school are thus secured.

The work of one other teacher remained to be provided for. With the exception of the Normal Lectures, this work was divided between Mr. Otto Fuchs and Mr. Walter F. Brackett. These gentlemen had been long employed in the school in more advanced work of the same general character. Their instruction had been uniformly satisfactory. Of high character, modest bearing, and entire integrity, they would carry forward the work, it was believed, which is but preparatory to that in which they were already engaged, in a manner equally satisfactory. This expectation is fully realized. The work referred to is in Class A, and is good work. There is a just distribution of

a straightforward helpfulness, and an earnest de-
equal progress of all, producing the happiest results
ils, both in their tone of feeling and in their prac-
. The work of Class A has never been better. In
s it excels that of the preceding year. One element
ess probably is a higher ability in the members of

al Lectures are given by Mr. Charles M. Carter, a
the school, whose instruction in the teachers' insti-
lled attention to his special fitness for such work.
fulfilling the expectation of the visitors. Beyond
the school he assists at the institutes, and supple-
work by visiting such cities and towns as desire his
ing and extending an interest in industrial drawing.
to teachers, under the direction and with the co-
the local committees, suggests the best methods of
he work, and seeks to promote a higher estimate of
As some little time is requisite to arrange such
et the wheels in motion, not much can yet be said
but, if this method of work shall be approved, a
harvest is confidently predicted.

s of the principal and of the other teachers — Mr.
. Patten, and Miss Hoyt — remain unchanged. The
rdinate instructors and employees are working har-
ogether, and, so far as depends upon them, securing
throughout the school.

A. A. MINER,
CHAS. B. RICE,
E. B. STODDARD,
ABBY W. MAY,
Visitors.

, 1881.

FORTY-FIFTH ANNUAL REPORT

OF THE

RETARY OF THE BOARD.

ECRETARY'S REPORT.

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ducation.

ULLY present herewith the Forty-fifth Annual
Secretary.

MARY OF STATISTICS FOR 1880–81.

and towns: cities, 21; towns, 325.
made the annual returns required by law.

schools		6,001
for the year	431	

l increase is 138. The apparent increase as
s arises from a change in the basis upon which
were made.

s in the State between the ages of 5 and 15 880		312,680
for the year.	5,359	
of all ages in all the public schools during		325,239
for the year		8,462
hip of pupils in all the public schools for		262,081
for the year	784	
ce in all the public schools during the year .		233,108
for the year	19	
lance, based upon the average membership .		·89
en under 5 years of age attending the public		1,685
of	148	
s over 15 years of age attending the public		24,344
for the year	676	
which report having made the provisions nts required by law		281
for the year	17	
s employed as teachers in the public schools : males, 1,134; females, 7,727; total . .		8,861

Number of teachers required by the public schools		7,1
Number of teachers who have attended normal schools		2,2
Number of teachers who have graduated from normal schools,		1,9
Average wages of male teachers per month in the public schools		$85·
Increase	$18·00	
Average wages of female teachers per month in the public schools		$38·4
Increase	$7·90	
Aggregate of months all the public schools have been kept during the school-year		53,506·

Note. — By an error in the returns this aggregate appears in the tables to be 50,633 months 6 days.

Average number of months the public schools have been kept (8 months 18 days)		8·1

Note. — In tables this appears as 8 months and 9 days.

Number of high schools		21
Number of teachers in high schools		59
Number of pupils in high schools		18,90
Amount of salaries paid to principals of high schools		$262,867·1
Evening schools: Number, 97, kept in 29 cities and towns. Number of teachers, 408. Whole number of pupils, 10,294: males, 7,852; females, 2,442. Average attendance, 4,765. Number of evenings, 1,659. Expense		63,589·0
Amount raised by taxation for support of public schools, including only wages of teachers, fuel, care of fires and schoolrooms		4,130,714·1
Increase for the year	$68,151·37	
Expense of supervision of public schools		159,313·7
Salaries of superintendents (included in the above)		62,492·2
Expense of preparing and printing school reports		12,450·4
Expenses for sundries, books, stationery, maps, globes, etc.		291,728·4
Amount expended in 1880–81 for erecting schoolhouses		535,895·3
Amount expended for alterations and permanent improvements in schoolhouses		267,545·6
Amount expended for ordinary repairs of schoolhouses		121,534·1
Amount of voluntary contributions for public schools		5,279·6
Amount of local school-funds the income of which can be appropriated only for the support of schools and academies		2,161,503·4
Income of local funds appropriated to schools and academies		110,327·6
Income of funds appropriated for public schools at the option of the towns, as surplus revenue, tax on dogs, etc.		183,072·3
Income of State school-fund paid to cities and towns in aid of public schools for the school-year 1880–81		69,007·8
Of this amount there was appropriated for apparatus and books of reference		4,326·9
Aggregate returned as expended on public schools alone, exclusive of expense of repairing and erecting schoolhouses		4,851,566·5

es, and income of funds at the option of the ax on dogs (exclusive of taxes for school- h child in the State between 5 and 15 years		15,516
valuation of 1881 appropriated for public g only wages of teachers, fuel, care of fires (two and fifty-one hundredths mills) .		$\$0\cdot002\frac{51}{100}$
ble and reformatory institutions: Number, different pupils, 945; average number at- the year, 603; number under 5, 23; num- nd 15 remaining July 31, 1881, 540; number les, 9; females, 14; wages of male teachers ·17; female teachers, $23·38; length of ge of 11 months and 15 days.		
orated academies		68
students for the year		8,069
paid		$433,841·18
schools		349
ending for the year		17,842
of tuition		$387,926·77
maintain public schools: For wages, fuel, d schoolrooms, supervision, repairing and ouses, printing reports of school committees, atus and books, stationery, maps, globes, lies, etc.		$5,776,541·75
erson in the State between the ages of 5		$18·474
erson in the State between the ages of 5 clusive of expense of repairing and erecting		$15·516
ation of 1881 (3½ mills)		$0·0035
amount paid for her public schools, Massa- ed in 1880, —		
umb	$29,128·76	
. . . .	30,000·00	
. . . .	17,500·00	
Primary School, Monson .	51,976·18	
form School, Westborough,	39,441·54	
dustrial School, Lancaster .	18,217·72	
. . . .		$186,264·20

DEAF-MUTES.

ars it has been the policy of the Commonwealth
nfortunate class the means of securing a good
e doors of the American Asylum at Hartford,
Clarke Institution at Northampton, and of the
School at Boston, are open to them; excellent

facilities for instruction are furnished, and the State, as appea
elsewhere in this report, bears a part of the expense. Fro
the report of the Principal of the American Asylum, bearin
date April 23, 1881, it appears that there were at that time 17
pupils in the institution, and that 61 of them were from Ma
sachusetts. The report says, —

> “The general health of the pupils throughout the year has been exce
> tionally good. There has been but one case of serious illness, — a case
> pneumonia, — and in that the recovery was speedy and complete.”

Of the graduates from the institution it says, —

> “Our graduates are to be found in all parts of New England, and, ir
> deed, scattered all over the United States. With few exceptions they ar
> honest, industrious, and respected citizens, earning a comfortable suppor
> for themselves and their families. They are engaged in a great variety c
> occupations, and in all of them take good rank as workmen.”

The method of instruction followed at the American Asylur
is that known as the sign method, while the other schools adop
the method of articulation. The different methods of thes
schools, and the interest awakened in the subject, lead the prir
cipal of the American Asylum to restate the arguments in favo
of the method practised there; and in his report we find th
following: —

> “In the discussion we shall use the term, ‘Pure Oral System,’ bein
> that adopted by the Milan convention, to designate the articulation system
> and the term ‘American System,’ to designate that comprehensive system i
> general use in this country, where signs, the manual alphabet, and writin
> are used as the means of instruction, and articulation and lip-reading ar
> taught as accomplishments. That a certain portion of the deaf may b
> taught articulation, and through it receive an education, is conceded by al
> This portion includes the semi-*mutes* and the semi-*deaf*, and exceptionall
> bright cases of total congenital deafness. These can be taught in this way
> as they may soon acquire, if they do not already possess it on entering schoo
> sufficient articulation and lip-reading to enable them to communicate wit
> their instructors. There is another class, comprising a large proportion c
> deaf-mutes, who never would attain facility in articulation and lip-reading
> This class nearly all teachers of the deaf, including a large part of the mos
> pronounced articulationists, admit can be better taught through the sig
> system. Concerning the most profitable way of instructing those occupyin
> the middle ground between these two classes, there is earnest dispute. It i
> conceded by most advocates of articulation, that the general education c
> this medium class can be carried on much more rapidly, and a broader de
> velopment given, in the time allotted them at school, through the America
> system, than through the ‘pure oral’ system; but they strenuously clai

of the articulation and lip-reading, which they acquire,
nsate for the loss in general development. On the other
tes of the American system maintain that this medium
n their general instruction by the sign system, and, at the
special teachers, acquire nearly as much of articulation
s they would if taught by the 'pure oral' system. This
practice of this institution.

advocates of the 'pure oral' system almost invariably
of signs in the instruction of the deaf hinders their prog-
sition of language. They claim that the imperfections in
he pupils of the sign schools are caused by the habit of
But we find the same imperfections in the language of
been taught exclusively by articulation, and who, their
ave no knowledge of signs. Precisely the same kind of
le, also, by foreigners who attempt to write the English
hey have thoroughly mastered it. The following quota-
te this point.

extract from an imaginary story suggested by a picture
the pupil while it was written. The writer lost hearing
and one-half years, and had been at school only where
as prohibited.

xtract from a letter written by a little Indian boy at school
ks, Penn.

extract from a letter of a Japanese gentleman to a friend

tter written by a young Mexican, who is now attending a
his State.

voman sat in the street, and some people want eat apples and
her about it. Two boys asked how much cost a apple. She
e don't pay it, and we walked all around in the street, and
long time, because she is very tired, and two boys saw her
lked no noise thief and ran off. He are very bad boy because
poor woman.'

s is a very beautiful morning, because my heart is very cheerful
ing just a little talk to you again this time. . . . I want you
very well. I think to try. I want to please me every day.
m, I want hear them all you truth because good man every
try read this time. . . . I was very excuse all the time at this
School.'

u will like not with a slightest doubt this kind walk should you
in E—— during that time. But I must confess that I like
ith our little circle under the trees overhanging upon your
layed many a time croquet, or anywhere we used to spend
eves to joyously on green grass, which rather difficult to get
nt the stiffness of society in E——, or which is found should
ic places, parks, but very much unpleasant through mixing
commons who are rough and ignorant beyond expression.'

"No. 4.

'N——, CONN., April 13th, 1881.

"'DEAR SIR, — Last vacation I had very pleasant time. I went to Hartford and spend day and a half. The time seemed to me very short indeed. I saw many thing that I never have seen them before. I came very happy from my trip. Next week I went to New York to see my friend, but I did not met him. I saw the Obelisk from far distance, because the policeman did not let us go near it. In the afternoon I started to Buffalo. Before I went to Buffalo, I went to Niagara Falls.

'Yours truly,

'J. M——.'

"How can these mistakes be accounted for? They surely cannot be attributed to signs. No: in all these cases the trouble comes simply and only from an imperfect knowledge of the English language. The remedy for these imperfections must be found in an increased familiarity with the language, and this familiarity must come through practice in the use of language. The pure oralists claim that their pupils get more practice in language than the pupils of the sign schools; but observation of the working of their system leads us to believe that this claim is unfounded. The method of communication is so much slower, and must be so much more individual in its working, that the pupils taught by the American system actually get much more practice in the use of the English language than the pupils taught by the 'pure oral' system.

"Signs are used by teachers only as a means of instruction, — never as an end. The mastery of the English language is a chief end of the whole course. Written language and the manual alphabet, by which sentences are spelled out letter by letter in the same way as in writing, are used incessantly. Ideas must be acquired from the printed page, and acquired ideas must be expressed in written language. These two processes we crowd to the utmost of our ability.

"Another evidence that the use of signs is no hinderance to the acquisition of written language is the fact that, almost invariably, the best language pupils are to be found among the best and clearest sign-makers. Before a thought can be clearly expressed, it must be clearly comprehended by the mind; and in no way can an idea be so quickly and so clearly conveyed to the mind of an imperfectly educated mute as through signs. Again and again have we seen pupils, taught exclusively by articulation, where signs were forbidden, yet whose language was full of imperfections, rapidly improve in the correct use of written language when brought under instruction by signs.

"But, say the pure oralists, suppose the progress is slow at first, the pupils taught by articulation soon attain such ready communication that they more than regain the time lost in the first steps. This theory is good: would that facts sustained the theory! But with a large majority of the pupils in articulation schools, *ready* communication is not reached. It is labored and slow and uncertain to the end of the course; and they leave school with a little articulation and some ability to read on the lips, but with much less general education and mental development, and so are far less fitted for the practical duties of life than those who have been under instruction for the same length of time by the American system.

aimed that the pure oral method restores mutes to society
same means of communication as is in general use by the
hem. This theory is also good, but is sustained by facts
nority of cases. *Some* of the pupils taught by the pure
ire the ability to communicate readily by articulation and
o do *some* of those taught by the American system acquire
In both cases they are the exceptions, and not the rule.

by the 'pure oral' method neither understand books
guage with more facility or accuracy, than pupils of the
y taught by the American system for the same length of
far as our observation goes, the former are quite behind
espects.

f schools have pupils who have learned language through
either partially deaf now, or they acquired language be-
aring. These use language readily either in reading or in
m an entirely different class of pupils from the toto-con-
they have nearly as much advantage over the latter as
ll their faculties have over semi-mutes. They occupy a
tween the two other classes. They cannot be measured
they start on their school course under very different con-
quisition of language the toto-congenital mute is heavily
ce with his semi-mute schoolmate. Whatever the system
wide difference cannot be overcome. To judge fairly of
ctions of pupils, this difference of conditions must always
deration. That which in the one case would deserve the
d merit very little in the other.

possessing all their faculties are always to be found a
who never attain to respectable scholarship. Among deaf-
on is greater than among hearing children, the minds of
g been affected by the same disease which deprived them
Many of these are never able to surmount the difficulties,
of the English language, which stand in their way; and
schools for the deaf we find numerous 'murders of the
nd the sin can be attributed to no system of instruction,
erable conditions imposed by Providence.

taken for granted in some quarters, that children taught
od have no means of communication except by signs.
e have heard it said that such pupils have no means of
th their friends, and cannot enjoy ordinary social inter-
entirely mistaken idea. The only method of communi-
ey are deprived is that of speech (a great deprivation, it
other mode of communication is open to them. The eye
speaks; pencil and slate or paper are used with the
d of many a social circle an intelligent mute is the most

ere is, in some quarters, an unreasonable scepticism as to
derstand thoroughly the ideas which they translate from
language. If an incident were related, or a story told, in
f hearing children, and immediately reproduced in good

English, would there be any reasonable doubt that the ideas were thoroughly comprehended? There is even less room for doubt in regard to a translation from signs. The surest test of the grasp of thought is the ability to express that thought clearly in written language.

"For an illustration of the power of signs to convey thought clearly, perfectly, independently of written or spoken language, I would refer to the translations printed in the appendix to this report. Classes of various grades, from one year to seven years standing, were assembled in the chapel: all witnessed the same telling of the story in signs by the principal, and no other assistance was allowed the pupils. How much each understood, and the ability of each to express ideas in language, will appear from an inspection of the various versions of the story.

"The method of instruction generally employed in the institutions for the deaf and dumb in the United States (about five thousand six hundred out of six thousand pupils being taught by that method) is a broad and comprehensive one, wrought out through long years of experience by such men as Rev. Thomas H. Gallaudet, Mr. Lewis Weld, Rev. W. W. Turner, Drs. H. P. Peet, F. A. P. Barnard, A. L. Chapin, and a host of faithful colaborers, — men able and candid, ever ready to examine new means and methods and to adopt whatever can be shown to be an improvement, but having too conscientious a regard for the real interest of their pupils to yield their earnest convictions to any mistaken ideas of parents or friends, or to the theories of philanthropists, well-meaning, indeed, but misled by an imperfect or superficial knowledge of facts. Its advocates do not claim that it is a *perfect* system; but they do claim, that, for the instruction of the great mass of deaf-mutes, it is the best system yet devised. When a better way can be demonstrated, they will gladly adopt it."

CLARKE INSTITUTION, NORTHAMPTON.

From the report of the principal of the Clarke Institution it appears that —

"During the year there were seventy-eight different pupils, from six to nineteen years of age. The average number for the year was seventy-seven. Sixty-one were from Massachusetts, five from New York, three from Vermont, two from Indiana, and one each from Canada, Maine, New Hampshire, New Jersey, Ohio, Iowa, and Utah. Of the whole number, two were semi-deaf, and eleven were semi-mutes: only four of whom could read when they entered school.

"There entered during the year nine pupils, from six to seventeen years of age. One of these became deaf at seven, retained speech, but could not read the lips; had attended public school, and had a good use and understanding of language. The other eight were either born deaf, or lost hearing when very young. It would seem as if the figures given above might divest the public of the idea that the majority of our pupils are semi-mute and semi-deaf. Only thirteen out of seventy-eight, or one-sixth of the whole number, can be counted as such, leaving five-sixths of the pupils here taught during the past year to rank as congenital mutes. Another error which should be pupils here are selected, and that none are received from int families. There could be no greater error. Children us before being admitted to the school, and it would not orer children nor of more ignorant parentage than some ne were ever refused on account of the poverty or ignorance There have never been but five pupils here from the New iose parents were able to pay board and tuition during the remained in our school. Again, if this institution has having teachers of special experience, it is a mistake. At eting of the Conference of Principals here, when the school ation more than ever before, only four out of our eleven here more than two years, and two of them less than six een remarked that our pupils use simple language: this is desire. We wish them to *understand* difficult language, every attempt to use the bombastic style so common among

ates of the high class of 1875, one still remains in the cial teacher of drawing, and as a regular teacher in the The mother of one, who became deaf at three years and s, 'You ever have my deepest gratitude, my warm affec- compare ——'s education with the other way, oh! I feel iot be said in praise of the great work you are doing for children, — giving them the power of speech. —— has iguage, and is constantly improving in her speech and ther has had the care of an invalid sister during the year, says nothing of her speech and lip-reading, we know they eans of communicating with others, and are considered self and friends. Another, who makes herself useful in ot think of resorting to other means of communicating y speech and lip-reading. One young man has just com- at Stevens Institute, at Hoboken, N.J., and taken the cal engineer. During the two years in the institution he ficient facility in reading the lips to depend upon it after as, however, pursued his studies successfully at Williston evens Institute. Other semi-mutes might with profit as he did, instead of learning the sign-language, and that they belong to a peculiar class.

ig man, a carriage wood-worker, writes, 'My lip-reading think. I do not have much trouble in understanding the evening: then I miss my hearing considerably.' Of o did not remain to graduate, one is in business for him- d publisher. His speech and lip-reading are good. The ing the three winter months, I had work in Hartford in which time I found the value of the education I received One time I delivered some goods to a lady, and, as I had ney of her, I spoke to her; and, as she spoke too fast for er know I was deaf. She did not believe it, and I had ssuring her of the fact, and her actions made me think an impostor.' All this class became deaf between five en years of age, except the one before mentioned.

"Of the graduates of the high class of 1877, a congenital mute writes, 'About the lip-reading, I think I have improved more this year than last. I think my speech is about the same as a year ago. I think I have improved much in language since school, because I read more, and go with the people more.' He is serving his last year's apprenticeship to a steel-engraver. Another young man, who has been learning wood-engraving about the same length of time, says, 'I think that my speech and lip-reading are about as good as they were a year ago. I do not feel that I have gained or lost in either. I do not think that any thing helps my voice and improves my conversation so much as does reading to some person who can point out the defects in my speech. It has become a pleasure to me now to take up the paper, and read aloud whatever interests me, and I feel that it gives me a habit of pronouncing words correctly and easily. The person who hears me says I read better now than I did a year ago, and she always understands every thing I say.' A friend thinks his lip-reading has improved very decidedly. He became deaf at five years of age. The young lady of that class became deaf at ten and a half years, and has excellent speech and lip-reading.

"Of the graduates from the grammar course in 1878, one who became deaf at seven years of age says, that while staying at the house of her brother, who is an expressman, people came to leave orders for him, and in no case was she obliged to use paper and pencil in conversing with them, and it was not more than once or twice one had to repeat what he said. Few of them knew her at all. Another, who is a dressmaker, says, 'I think I have neither lost in lip-reading nor speech.' She became deaf at four, and lost her speech entirely. A young man, deaf at one year, who is engraving in a watch-factory, thinks he has lost nothing in speech and lip-reading. Another, a congenital mute, not heard from recently, is known to have retained her speech and lip-reading. Of others in the class, who did not remain to graduate, one, partially deaf at two years, perhaps born partially deaf, says, 'Every stranger thinks that I am some hearing fellow. They say that I talk very plain.' He reads the lips well. He spoke but few words when he came to school at five years of age. Another young man, in his father's laundry, is said to read the lips very well. One is working in the largest printing-establishment in Iowa. He says, 'My articulation is about the same as when I wrote last.''

"Of the graduates of 1880, from the grammar course, the friends of one think her speech remains about the same, but that her lip-reading has improved. She says, 'I very often understand friends when they talk to others. Many strangers understand me readily when I try to talk nicely.' Through a friend, we hear of another whose speech has improved in the last few months. Another we have not heard from, but we know that she will lose neither speech nor lip-reading. The only semi-mute in the class has this year graduated from a public grammar school, and ranked fourth in a class of twenty-five. Much to our disappointment, he is now to learn a trade instead of entering the high school, where he might acquit himself with credit. His lip-reading has been of great service to him.

"A semi-mute, not in school long enough to acquire much lip-reading, has lost nothing in speech. She is a frequent contributor to juvenile peri-

main only five others from whom we have received reports.
of average attainments. They seem not to have lost in
ding since leaving school.
ears of our school, a little one of five years came to us
She remained two years, and since then has been instructed
other being devoted to her. Now, at seventeen, she is
with hearing children, the same demands being made of
rs. She is studying English literature and physiology.
e reports we gather encouragement for the future."

HORACE MANN SCHOOL.

of the committee upon the school it is stated

f the last school year, in June, 1880, there were seventy-
is school. Since that time twelve new ones have been
withdrawn.
the present number of pupils live in Boston, twenty-two
cinity, and three come from other States.
uffered from the prevalence of measles and mumps during
the other public schools of the city; but these diseases
e youngest classes. With this exception the health of the
roughout the year.
nge occurred in the corps of teachers.
experience, combined with a constant study of the princi-
and with their application to methods of teaching, is per-
re evident than in schools for the deaf. Children who
most important avenues to the mind closed forever ought
tion from exceptionally skilful, ingenious, patient teachers.
ld, on entering school, must be taught the words, phrases,
ces which are used in daily speech, through the constant
eir written forms with the objects and ideas which they
his part of the instruction the teachers have found the
nvaluable aid. To avoid wearisome exercises, as well as to
terest to the acquirement of a vocabulary, illustrated word
ns have been prepared for the youngest classes. Papyro-
these and of other simple language lessons have supple-
board work of the teacher.
part of the school year, the committee in charge received
roposal for a course of kitchen-garden lessons, including
ecessary apparatus ; and the results are highly satisfactory.
class of twenty-four girls was taught by an experienced
portunity to have the apparatus at the school was of great
ren, who were thus made familiar with the names of house-
and with the language associated with their use. These
will never forget the instruction received in the proper
s, to sweep and dust rooms, to make beds, and to wash
rogress in acquiring the language of home life was very
one of the most important results of this course of object-

"As during the previous year, a class of girls attended the Boston Cooking School on Saturdays.

"A few weeks before the close of the school year, one of our boys was admitted to an afternoon class at the North End Industrial School, where a practical carpenter gave lessons in the use of tools. Another boy went every afternoon to the shop of a sign-painter to learn that trade. Both of these boys were occupied in their respective shops during the greater part of the vacation, and will probably continue their afternoon lessons during the coming year. Further opportunities for industrial training out of school are earnestly sought by the principal, and will be cordially embraced wherever they are found."

STATISTICS OF BENEFICIARIES.

American Asylum.

Number of Massachusetts beneficiaries Jan. 1, 1881	63
admitted during the year	10
discharged during the year	11
in the institution Jan. 1, 1882	62

Clarke Institution.

Number of Massachusetts beneficiaries Jan. 1, 1881	60
admitted during the year	11
discharged during the year	2
in the institution Jan. 1, 1882	69

Horace Mann School.

Number of Massachusetts beneficiaries Jan. 1, 1881	72
admitted during the year	12
discharged during the year	12
in the institution Jan. 1, 1882	72
Whole number in all the institutions Jan. 1, 1882	203

Financial Statement.

Appropriated by chap. 17, Acts of 1881		$40,000 00

American Asylum.

62 beneficiaries for the term beginning March, 1881,	$5,425 00	
62 beneficiaries for the term beginning September, 1881	5,425 00	
Clothing furnished beneficiaries for year ending July 1, 1881	446 03	
		11,296 03

Clarke Institution.

60 beneficiaries, quarter ending March 31, 1881	$2,966 50	
60 beneficiaries, quarter ending June 30, 1881	2,934 36	
60 beneficiaries, quarter ending Sept. 30, 1881	2,966 50	
70 beneficiaries, quarter ending Dec. 31, 1881	3,466 50	
		12,331 86

Horace Mann School.

m Feb. 1 to July 1, 1881 . . .	$3,524 10	
m Sept. 1 to Feb. 1, 1882 . . .	3,443 59	
beneficiaries for year	200 00	
		$7,167 69

INSTITUTION AND MASSACHUSETTS SCHOOL FOR THE BLIND.

last year the Trustees of this Institution made e "generous and benevolent of the community" und for the blind. They desired to raise a fund eld an income of five thousand dollars a year; ht that with such an income the press could be t activity, and could issue twelve or more voln.

Extracts from the Appeal.

k of nature, with its myriad pages of beauty, its endless , and its ever-changing aspects of sea and sky, is cone seeing. The achievements of art can be enjoyed by and seasons, and literature gives them daily something st upon. How different is the lot of the blind, and how eges of this sort which they enjoy! Yet even for these tune a brighter day is dawning, and literature, which is, r greatest solace, holds out to them its consolations and room where some seeing person is reading aloud to the e intense interest with which the older members of the lips of the reader. How they drink in every word! This ion for all the beautiful things which others enjoy, and e cut off. While a seeing person often grows restless, a an attitude of intense enjoyment and appreciation, draws the reading is over, as if it had been almost too good, e historic facts or philosophic truths in the storehouse of eaves the room enlightened and enriched. Those golden s which he never forgets to count over with pride and ntion of the title of each well-prized book brings a smile s 'lived through' literature, not dreamed over it.

n happy, then, is he, when it offers itself to the tips of en he need look to no seeing person to step in as an interauthor and himself! This is the work to which the most the friends of the blind should now be directed; namely, a choice library of embossed books for their personal use. ts of great minds were never meant to be shut off from eft of sight. Hundreds of them have felt, in their soli, how cheering and useful is intellectual light. But what received is not enough. They ask for more. Shall their call be heeded? May we not hope that the voice of the same benevolenc which has inspired the hearts of so many noble men and women with desire to ameliorate the lot of those whose night endures from the cradle t the grave, will whisper to others of high aim and purpose, 'Go ye, and d likewise'?"

In response to this appeal a public meeting was held April 1 in Tremont Temple, presided over by his Excellency Gov Long. He spoke stirring words full of sympathy for the blinc and of interest in the object which had brought them togethe He was followed by other distinguished gentlemen, who be spoke a hearty co-operation on the part of the benevolent.

As a result of that meeting, and of the efforts growing ou of it, about forty-four thousand dollars have been raised for th printing fund for the blind; and the hope is that the remainin thirty-one thousand dollars needed to complete the fund wil not long be wanting.

The following is compiled from the reports of the Trustee and of the Director: —

Present State of the School.

"The institution continues to be in a flourishing condition, and its influ ence and importance as the most effective agency for developing the capaci ties of the blind, and enabling them to become independent workers wit hand and brain, increase from year to year.

"The establishment is provided with appliances and apparatus of th most approved kind, and is well appointed in all its departments, which ar so arranged as to form a cluster of fruitful branches to crown the solid trun of the parent tree.

"The business of the school has been carried on in a very satisfactor manner; and the results of its workings, which have been witnessed fron time to time during the year by members of our board, have been thoroug and solid. This was manifestly shown in the searching examinations, an at the graduating exercises, which were held at the close of the term in th music-hall of the institution.

"In the management of the affairs of the school there is a fixed an definite policy, which consists in adhering to what is good, in improvin what is imperfect, in strengthening what is weak but useful, and in adopt ing what is pointed out by the light of experience and science as bes adapted to the wants of the blind.

"The institution entered upon the fiftieth year of its organization i August last, and with the close of the present school session will occur th first semi-centennial anniversary of its existence.

"The time which has elapsed since then has seen wondrous changes and in no instance more remarkable than in the matter of the education o the blind. The little band of six pupils first gathered together by Dı

er's house on Pleasant Street, has expanded into whole
pupils, graduates, and candidates. Useful blind citizens
r honored career, and gone to their graves. Young chil-
ly coming to us for the first rudiments of education.
ners of pianofortes, mechanics, men of business, trained
efficient practice of their respective professions and arts
care of the school, ply their avocations actively in all the
of New England. The timid blind child, hardly trust-
e alone, or his hands to trace the first letters of the alpha-
mong us as the self-poised, self-dependent man, managing
ssisting in those of others, scorning the idea of being a
nelpful, respected, intelligent, and industrious.

ver the annals of the Institution, and recounting the
hich it has passed, and the work it has accomplished, we
t it has been to the blind of New England what the heart
dy, — the centre and source of their mental vitality and
om which the young, fresh, and bright stream of intel-
light is distributed in every direction to strengthen their
their dormant powers, and illumine their darkened path

erience in our work stimulates our energies, and quickens
e thorough and satisfactory performance. Full well we
ar from having reached the highest attainable point; and
hope that the amount of positive good gained, and of evil
he agency of the school from year to year, is steadily in-
repetition, however, in a perfunctory fashion, of what has
, or the performance of approximately the same work in
manner, is not sufficient. In order to advance the cause
f the blind, and bring it within the limits indicated by
bed by the nature of their case, we must strive to over-
ies, and to surmount every obstacle that can be reached by
e.

f pupils is rapidly increasing. There never were so many
d particularly little girls, received at the beginning of any
sion as this year. Most of them seem to be quite intelli-
; while in a few cases the disease which has caused the
undermined the constitution, and weakened the mental

he efficient and proper training of the blind, in order to
roductive of good results, should be adapted to the special
eir case, and calculated to meet the exigencies resulting
, and to promote the full development of their remaining
armonious growth of their powers. It should constitute
, intellectual, and moral gymnasium, preparatory for the
e arena of life, and should include that finishing instruc-
f society which Schiller designated as the 'education of
consisting of action, conduct, self-culture, self-control, —
scipline a man truly, and fit him for the proper perform-
, and for the business of life. A mere literary drill, or

any exclusive and one-sided accomplishment, cannot do this for the blind. It will prove insufficient and incomplete at its best. Bacon observes, with his usual weight of words, that 'studies teach not their use; but there is a wisdom without them and above them, won by observation;' and all experience serves to illustrate and enforce the lesson, that a man perfects himself by work blended with reading; and that it is life elevated by literature, action quickened by study, and character strengthened by the illustrious examples of biography, which tend perpetually to purify and renovate mankind.

"Mechanical teaching has been persistently avoided; and the system of requiring the pupils to commit stolidly to memory the contents of text-books, to recite meaningless rules glibly, and to learn crude and obscure statements of abstract theories and wordy definitions by heart, has no place whatever in our school. On the contrary, the time is devoted to the nurture of the intellectual faculties, to the development of the mental powers from which ideas are born, and to the acquisition of those great truths which relate to the happiness of the human race, and to the general welfare of mankind.

"In the primary departments of the school the educational processes have been pre-eminently objective, synthetic, inductive, and experimental; while in the advanced divisions they have been subjective and analytic as well,—deductive as well as inductive, and philosophical as well as experimental. In the high classes a broad and deep foundation has been laid for future achievement. Here the pupils have attained a good degree of scholarship and culture, which increases the strength and fertilizes the resources of their mind. Here they have been taught how to command their powers, and direct their energies. Here they have been furnished with all available facilities to prepare themselves for a useful career in life.

"*Kindergarten and Object-teaching.*

"The blind usually experience great difficulty, not only in getting a clear idea of things from mere descriptions, but obtaining by feeling correct notions of the forms of objects to which they have not been accustomed; and this is a serious drawback to their acquiring much valuable and practical information. This difficulty arises, not from any general defect in their powers of sensation,—for these are in the majority of cases not in the least affected by the causes which produce blindness,—but rather from the want of a special and thorough training of the sense of touch.

"To remedy this important evil as far as we may, and at the same time to awaken and exercise the powers of observation, comparison, combination, invention, memory, reflection, and action, the kindergarten system and object-teaching have been found among the best and most efficient auxiliaries; and both have received due and earnest attention in our school.

"The workings of the system in our school have been most beneficent. Children who seemed entirely helpless, and had no command whatever of their hands, have been roused to energy and activity by the agency of the kindergarten. Through the simple but interesting and attractive occupations of block-building, weaving, embroidery, moulding in clay, and the like,

l a great degree of muscular elasticity and manual dex-
ts them in tracing on the maps with alacrity, in decipher-
print easily, in tying the strings of their shoes neatly, in
omptly, in using their needle adeptly, and in doing a num-
ily which they would have felt unable to undertake without
odelling is particularly beneficial to the blind: it helps
more or less correct idea of forms of various kinds, which
sible for them to obtain by the mere handling of objects.
work may thus be likened to the exercises given to begin-
ich prepare the student for rendering difficult pieces more
training of primary classes of blind children can attain
fficiency without its assistance."

of blind persons connected with the institu- r was	148
he year	26
	174
. . . .	19
	155

for the year ending Sept. 30, 1881,	$47,290 82	
enses, improvements, etc. . .	8,988 52	
. . . .		$56,279 34
of invested funds, including printing-fund, is		170,97 040

E OF MASSACHUSETTS SCHOOL FUND.

. 1, 1881		$70,040 77
year 1881		138,774 88
		$208,815 65
wns in 1881	$69,007 81	
ses in 1881	69,349 94	
880	1,032 96	
ote purchased	75 00	
nce of Educational Moiety, 1880 . .		139,465 71
nd Dec. 31, 1881		$69,349 94
is to be paid cities and towns one-half		69,349 94
ts School Fund amounted, ...	$2,075,540 73	
tional Moiety, 1879 . .	11,346 28	
fund Dec. 31, 1881		$2,086,887 01

Analysis of the School Returns.

The returns furnished by the school committees of the several cities and towns of the Commonwealth show an increase in the number of persons between the ages of five and fifteen years of 5,359, and an increase in the number of schools of 138. This increase in the number of schools is about what might be expected from the increase in the number of persons in the enumeration; for, were those equally distributed among the 138 schools, it would give nearly 40 pupils to each school. All the counties in the State, except Nantucket, Norfolk, and Suffolk, report an increase in their enumeration, and some of them quite a large one. Essex reports 1,377 increase; Hampden, 1,129; Middlesex, 2,099; and Worcester, 1,847: while Suffolk reports a decrease of 2,826.

The enumeration made May 1, 1880, shows that there were 312,680 persons of school age; while the enrolment shows that the entire membership in all the schools for the year was 325,239 — a number greater than the enumeration by 12,559.

This does not indicate an error either in the enumeration or the enrolment; for the 25,000 pupils, more or less, in the schools over fifteen or under five years of age, and those who became five after May 1, and found their way into the schools during the year, are not included in the enumeration, but are in the enrolment. The average membership has been slightly greater than it was last year, but not enough to change perceptibly the per cent of attendance based upon it.

Only 281 towns report having made, even in part, the provisions required by law concerning truants, and this leaves 65 which have not complied with the statute. There seems to be an unwillingness on the part of some county commissioners to provide truant schools.

By their refusal or neglect, the commissioners are violating a wise and necessary statute of the Commonwealth, they are greatly increasing the difficulties the towns need to experience in providing for their truant children, and they are rendering the towns of their counties liable to lose their share of the income of the School Fund.

There is no subject connected with school attendance that demands more serious and earnest attention than truancy. School committees and teachers have for many years com-

lifficulties connected with an efficient discharge
in the management of truant children. No
on can be made of this class of children until
is provided by the town or county for their con-
line, and instruction. A proper place is a school
all the facilities for exerting a good moral influ-
children, at the same time it provides a good
and industrial education. The truant class must
d. Crime and pauperism are more expensive to
ucation, and a free State cannot afford to have a
ithin its limits growing up in ignorance.

expended for support of schools, including only
ers, fuel, and care of schoolrooms, is $4,130,714.-
equally distributed among the persons found in
n, gives to each $13.21.

em above, $4,130,714.11, be added the cost of
59,313.79), of printing school reports ($12,450.-
f books, stationery, maps, globes, and schoolroom
728.40), the entire amount raised by taxation and
the public schools becomes $4,594,206.75; and
stributed as before, gives to each $14.693.

nount raised by taxation, $4,594,206.75, and ex-
he schools, there be added the amount not raised
namely, the income of funds as surplus revenue,
, appropriated to schools by the action of the
72.36), voluntary contributions ($5,279.63) and
the State School Fund ($69,007.81), — it gives
$4,851,566.55; and this, distributed as before,
15.516.

nount, $4,851,566.55, there be added the amount
school-buildings, — for new houses ($535,895.37),
improvements ($267,545.67), and for ordinary
34.16), — the entire expenditure for all public-
s becomes $5,776,541.75; and this, distributed as
each person in the enumeration $18.474.

SCHOOL LEGISLATION.

ts, throughout all the years of her history, has
intense and intelligent interest in popular edu-

COLONIAL LAWS.

As early as 1635 the inhabitants of Boston gave public expression to their ideas of the value and need of a public school for the teaching and nurturing of the children. In 1636 the General Court authorized an appropriation of four hundred pounds, for the establishment of a school or college. The school was established at Cambridge, and has since become Harvard University.

The first educational ordinance of the Colony was passed in 1642. "It required the selectmen of every town to have a vigilant eye over their brethren and neighbors, to see that none of them shall suffer so much barbarism in any of their families as not to endeavor to teach, by themselves and others, their children and apprentices so much learning as may enable them perfectly to read the English tongue, and [obtain a] knowledge of the capital laws."

A failure to comply with the ordinance was punished by a fine of twenty shillings.

The Act of 1642 enjoined upon the municipal authorities the duty of making education universal, but not necessarily free.

In 1647 another law was passed, making the support of public schools compulsory, and education universal and free. As this was the first law of the kind ever passed by any community of persons, or by any State, Massachusetts may claim the honor of having originated the free public school. At this time it was ordered that every town of one hundred families, in addition to its elementary schools, should establish and maintain a grammar school, which should fit pupils for the University at Cambridge.

In 1683 all towns of five hundred families were required to maintain two grammar schools and two writing schools.

These were the principal laws establishing and regulating the schools during the colonial period.

STATE LAWS.

In 1789 a general act was passed requiring every town to maintain one school for the term of six months, or two or more schools for terms of time that shall together be equivalent to six months, in which should be taught orthography, reading, writing, English grammar, geography, and decent behavior.

it was ordered that the towns be divided into
e purpose of facilitating the attendance of the
he schools. The schools were still to be under
ol of the towns.

r ordered that towns of two hundred families,
undred, as before, should constitute the minimum
pporting a grammar school, and that teachers
ertificate of good moral, as well as intellectual,

ct of the Legislature authorized the selectmen
call district meetings, at which the legal voters
raise money for building schoolhouses, and for
with all necessary furniture.

ol districts were made corporations, and were
old property for the use of the schools.

y town containing five hundred families was
ntain a town or high school, which should differ
mmar school by omitting, from its curriculum of
the Latin and the Greek languages.

contained four thousand inhabitants, it was
intain a higher grade of high school, in which
uages were to be taught.

w of 1826 was the first to require towns to elect
ommittee.

sed in 1827, school districts were authorized to
heir schoolhouses, and to contract with their

f 1832 made it appear that the average amount
pupil attending the public schools was $1.98.
s made in 1834 it was known that about five-
ildren of school age were in the public schools,
supposed, the remaining one-sixth was in the
of the State. In the same year an act was
it unlawful to employ children under fifteen
any manufacturing establishment, unless they
hool the year next preceding for at least twelve

usetts School Fund was established in 1834.
h it was established provided that all moneys
derived from the sale of lands in the State of
the claims of the State on the government of

the United States for military services, and not otherwise appropriated, together with fifty per centum of all moneys thereafter to be received from the sale of lands in the State of Maine, should be appropriated, to constitute a permanent fund for the aid and encouragement of common schools, provided that said fund shall never exceed one million of dollars. The limiting clause of the law has been amended, and the fund at present exceeds two million dollars.

The Board of Education was established in 1837. It consists of the Governor, Lieutenant-Governor, and eight persons appointed by the Governor, with the advice and consent of the Council. Each of the eight is appointed to hold office for eight years. The duties and powers of the Board are defined by the statutes. They are to hold in trust for the Commonwealth any grant of land and donation or bequest of money or other personal property made to it for educational purposes.

They are to prescribe the form of registers to be kept in the schools, and the form of the blanks and inquiries for the returns to be made by school committees. On or before the third Wednesday of January they are to lay before the Legislature a report containing a printed abstract of returns, and a detailed report of all the doings of the Board, with such observations upon the condition and efficiency of the system of popular education, and such suggestions concerning the best means of improving it, as the experience and reflection of the Board may dictate.

The Board may appoint its own secretary, whose duties are also prescribed by statute. Under the direction of the Board, he is to make an abstract of school returns; collect information concerning the public schools; diffuse as widely as possible throughout the Commonwealth the best system of public instruction; visit, as often as other duties will permit, different parts of the Commonwealth; receive and arrange the reports of school committees, and distribute the State documents relating to the public-school system.

The secretary is also required to attend such meetings of teachers of public schools, members of school committees of the several towns, and friends of education, as may assemble for the purpose of discussing topics connected with the management of the schools; and he is at these meetings to devote himself to the object of collecting information relating to the condition of

the fulfilment of the duties of their office by
school committees in the towns and cities, and
formation desired for the report of the Board.
ay appoint one or more suitable agents to visit
er with teachers and committees, lecture upon
ed with education, in the same manner as the
do if he were present.
two oldest normal schools were established,—
on, now located at Framingham; the other at
ted at Westfield.
ng education compulsory for all children between
t and fourteen was passed in 1846.
owns were first required by law to maintain a
er of schools for all the children of school age,
for not less than six months.
sed in 1850 the school committees were author-
e into the schools the study of physiology and

858 was classed with physiology and hygiene,
uction made optional with the committees.
with a petition made by many citizens, an act
869 including drawing in the course of studies
ls.
legislative act, it was made illegal to employ
ten years of age in any manufacturing, mechan-
tile establishment in the Commonwealth; to
ld under fourteen years of age, except during
e public schools, unless during the year next
employment he has for at least twenty weeks
school approved by the school committee. In
passed forbidding the employment, while the
town or city are in session, of any child under
f age who cannot read and write.
defined by the statutes, is a child between the
nd fifteen years who may be found wandering
s or public places of a city or town, having no
on or business, not attending school, and growing
. In 1873 the towns and cities were put under
to make all needful provisions and arrangements
en; to make such by-laws as shall best promote
uch children and the good order of the towns;

and to provide suitable places for the confinement, discipline, and instruction of such children. It has already been said, that to provide a suitable place is to establish a truant school, and to organize it so as to supply the wants of truant children.

To lessen the expense to be borne by each town in establishing truant schools, if three or more towns in any county so require, the county commissioners shall establish, at the expense of the county, truant schools, to which all the towns of the county may send their truant children. To still further lessen the expense, an act was passed in 1881 permitting two or three contiguous counties — or in case of Norfolk, Bristol, Barnstable, and Plymouth Counties, four contiguous counties — to unite and form a Union Truant School, into which the towns of the counties uniting may send their truants.

From what has been said it will appear that the organization and control of the public schools of the Commonwealth are determined by acts of the Legislature, and that our system of schools is a State system.

It is the policy of this State to require a sufficient number of schools to be maintained for all the children of school age, to determine what branches of learning shall be taught, to require all school-children to go regularly to school, to place over the schools teachers of competent intellectual and moral ability to direct the youth under their care to the best intellectual and moral results.

Since the organization of the Board of Education, in 1837, a uniform State system of schools has been created, a comprehensive plan of collecting accurate school statistics has been established, six State normal schools for the professional training of teachers have been organized, and methods of teaching have been improved. In addition to these changes, laws have been passed requiring the use of a uniform method of selecting and examining teachers, establishing uniform courses of studies for the different grades of schools, and a minimum time of attendance by the pupils; and there has been awakened in the minds of the people a deeper and more general interest in popular education.

This interest in the schools is now manifested in many ways, and first by the amount of money voluntarily raised for their support. Last year Massachusetts expended $5,776,541.75 for public instruction alone, — an amount equal to $18.474 for every te between five and fifteen years of age, or 3.5 dollar of her taxable property. In 1832, as the average amount per pupil was $1.98.

rest now taken in the schools is manifested by ndance secured.

in the State, on the 1st of May last, 312,680 en five and fifteen, and there were in the public 9 pupils. The per cent of attendance based on embership was 89; and the average length of ance was eight months and eighteen days. The endance based on the entire membership was 77, average attendance of any State of the United ted by the Commissioner of Education.

e in the history of the State have the public- s been so thoroughly interested in preparing their work.

ormal schools and the city training schools are h earnest students, studying the philosophy of ractising for skill in the application of principles.

cities, and every county of the State, have their ations; the former meeting once a month, the wice in the year, for conference and discussion.

e year the teachers of the whole State come place for a general discussion of those topics in ction that hold a relation to the Commonwealth

ast four years there has sprung into existence a on of educational forces. I refer to school com- ions. There are now nine of these associations, twice in the year for the purpose of discussing s that refer especially to the duties of superin- blic instruction.

of these meetings have been most marked.

conventions have appointed sub-committees to s of studies for the schools of their own respec- These courses are now in use.

sulted also an awakening of the public mind in mportance of securing a better attendance upon ols.

truant school has already been established, and n come into existence.

The committees, in their deliberations, have considered the imperative necessity of securing trained or experienced teachers for the schools, and of adapting methods of teaching to the wants of the minds of those who are to be taught.

They have resolved to furnish the schools with more adequate means of teaching and study. They have approved of reducing the number of schools in the towns to the smallest number consistent with their efficiency; and they have unanimously and emphatically resolved in favor of placing over all the public schools of the Commonwealth an educated superintendence.

The school committees of the State are the legally constituted school authorities. Upon them the State has imposed the duty and the responsibility of organizing and supervising the schools, and has clothed them with authority equal to their duties and responsibilities. It seems eminently proper, therefore, that these officers of the Commonwealth should organize themselves into associations for mutual improvement.

But notwithstanding the wisdom manifested by the fathers in founding our educational institutions, and the philanthropic efforts of all the generations that have followed them in cherishing what the fathers originated, still there is earnest, intelligent, persevering work to be done, to bring into existence such educational results as our schools ought to produce.

The school laws of the Commonwealth are supposed to express the will of the people with reference to the schools.

It is the duty of the school officers of the State to use the authority which the statutes confer upon them in collecting all the children of school age into such schools as the people have willed to exist.

To this end our school laws, now in force in the Commonwealth, must be fully understood and carefully observed. I desire to direct attention briefly to those statutes, in obedience to which our schools are to be established and organized.

By the statute, chap. 44, sect. 1, of Pub. Laws, —

> "Every town in the Commonwealth is required to maintain for at least six months in each year, at the expense of said town, by a teacher or teachers of competent ability and good morals, a sufficient number of schools for the instruction of all the children who may legally attend public school therein, — in orthography, reading, writing, English grammar, geography, arithmetic, drawing, the history of the United States, and good behavior.

ıusic, agriculture, sewing, physiology, and hygiene shall be
ɛs or otherwise, in all the public schools in which the school
it expedient."

observed that this statute requires a sufficient
hools to be kept, but it does not determine the
that may be deemed sufficient in any given case.
r must be sufficient for all the children who may
school; but the statutes do not specify any age
lren may enter school, nor the age to which they
. There is in the Commonwealth no legal school
hool committees, therefore, under their general
erintendence, may determine how many schools
t number, and what shall be the limit of attend-

ıowever, compels the attendance of all children
ges of eight and fourteen for twenty weeks in the
committees may admit pupils before they are eight,
them until after they are fourteen.
ɜat importance to the schools and to the towns
than a sufficient number of schools are attempted
ıed.
ols are small, money, time, and efficiency are sure

thirty pupils may be supported almost as easily
.
ɜan teach the one in the same time as is required
and with far greater enthusiasm.
are stimulated by the presence of numbers, and
ccomplish more in classes of a proper size.
ıen, recommend that the towns unite their very
if they happen to have any, into larger ones. If
mall appropriation may be made for the transpor-
se pupils who would otherwise be obliged to walk
ce.
s already adopted in many towns, and wherever it
ıfully tried it has proved eminently satisfactory.
chool committees a right to determine the number
own shall maintain?
have decided that the power of general superin-
s a plenary authority in the committee to determine

how many schools shall be kept, and to arrange, classify, and distribute pupils in the various schools of the towns as they think best adapted to their general proficiency and welfare.

I have named the course of studies for the elementary schools which the statute prescribes for them; but this is a minimum course. By another statute power is granted to the committees to prescribe a course of studies and exercises for the schools.

In making out this course the committees would not be at liberty to omit those branches of study enumerated in chap. 44, sect. 1, of the Public Statutes; but they would have a right to make such additions as the spirit of the statute will permit.

Whatever change is made, it is of great consequence that it be a wise one.

The value of a good course of studies will appear when we consider what such a course is adapted to accomplish.

1. It will determine the kind of knowledge the student will obtain.

2. The knowledge will determine the kind and degree of mental activity the mind will exert in gaining possession of the knowledge.

3. The activity will give character to the mental training received, as it is the efficient cause of this training.

To make a proper course of studies, then, one must know what knowledge is most useful for the pupil to know, and what will call the mind to the most useful exertion of its own power. He must know also what order of studies will be best adapted to the wants of the mind in its different stages of development.

With a knowledge of all these things, the skilled educator puts himself to the difficult task of constructing a course of studies for the public schools.

The course already described is for the elementary schools. In addition to this, the statutes provide courses for the two grades of our secondary or high schools.

"Chap. 44, sect. 2, of the Public Statutes requires every town containing five hundred families or householders to maintain a high school to be kept, for at least ten months in the year, by a master of competent ability and good morals, who, in addition to the branches of learning before mentioned, shall give instruction in general history, book-keeping, surveying, geometry, natural philosophy, chemistry, botany, the civil polity of this Commonwealth and of the United States, and the Latin language.

"And in every town containing four thousand inhabitants there must be maintained a school taught by a teacher or by teachers of competent ability

in the branches already enumerated, and also in the Greek
ages, astronomy, geology, rhetoric, logic, intellectual and
l political economy.”

urses of studies required to be taught in the
it may be seen that what is called our system of
up of two distinct grades of educational insti-
e lowest grade are to be taught the elements of
the highest the elementary studies are to be
nces.

ades form a complete system: neither can be
t leaving out a part of a whole.

ary schools teach facts, and train the powers that

ry schools teach scientific knowledge, and train
lect.

imple facts are observed ; while it is reserved for
d the minds of the pupils to discover those gen-
and rules of conduct that guide one to a success-
life, and enable him to become a good citizen in
wealth.

be forgotten, in judging of the value of secondary
t elementary knowledge, or a knowledge of facts,
g in itself except to furnish the data from which
may be derived.

consequence to know how to perform a problem
in a book, unless we can derive from it a general
wledge of which will enable us to perform all
t kind. It is not important for us to know the
are mountains on the surface of the earth, unless
he causes which made them, and the effects they

wledge is limited to individual things, the other
pplication.

we gain general knowledge, and a knowledge of
he phenomena about us, that we are preparing
e life we are to live.

al necessities, our form of government, and our
der our secondary schools a necessity.

hools do more than offer to all the children just
which alone can fit them for the duties of private

and public life. They also stimulate into a greater efficiency all the schools below them.

It is said that the elementary schools of Germany are the best in the world, because the higher schools are open to all classes.

They encourage the pupils to pass through all the lower grades of their educational work, that they may pass into the high school, and reap the advantages of scientific study. They stimulate the lower schools to more efficient work, that their pupils may be well prepared for the pursuit of secondary knowledge.

They control the methods of teaching practised in the lower schools, and they modify the courses of studies taught in them.

The secondary schools do more than any other means we have towards producing and preserving that social equality which forms the basis of republican institutions.

High-school training is necessary as a foundation for successful industrial training.

In all countries where secondary instruction is within the reach of the people, there the people outstrip all others in the pursuit of the industrial arts.

The higher the civilization of a community, the more perfect its intelligence concerning those social conditions out of which spring the most perfect social state, the more steadily and generously are supported the secondary schools.

There are now in the Commonwealth two hundred and fifteen high schools, furnishing an opportunity to over ninety per cent of the entire population of the State to obtain a good secondary education. Nearly forty towns voluntarily support these schools, believing with the fathers that the elementary schools are wholly inadequate as a means of public instruction.

The towns are not only required to establish a sufficient number of schools for all the children who may legally attend school therein, but they are also required to see to it that the children go regularly to school.

In securing this end, the results of which are vital to the Commonwealth, they are to be aided by the co-operation of all in authority, and of all citizens.

It is to be hoped and expected that no parent or guardian of a child of school age, in this Commonwealth, will voluntarily detain him from school, unnecessarily, for a single day of that short time of attendance required by law.

or guardian fails to send his child to school
ach year, ten of which shall be consecutive, he
pulsory law, chap. 47, sect. 1, and renders him-
penalty.

er of children is in fault, then the laws (chap.
limiting their employment will remind him of
rivate duties.

as no one to look after his early training, but is
t the streets, without employment, and is grow-
rance, then the truant laws take him up, and
e he can be made the constant object of good

require every town in the Commonwealth to
for the confinement, discipline, and instruction
en.

forms, sent out by the Board of Education to
ittees of the towns, to be filled out and returned,
: Has your town obeyed the laws relating to

yes" implies,—

own has provided a place for its truants.

s adopted a code of by-laws to guide its truant
ischarge of their duties.

school committee of the town have appointed
ers, who, under the direction of the committee,
ll the laws relating to the school attendance of
of school age.

acts must be faithfully performed, as conditions
share of the income of the State School Fund.

laws relating to attendance are comprehensive
finite enough, if faithfully executed, to put all
ren into school, still it is not expected that in
d, free State, like Massachusetts, whose existence
onwealth depends upon the proper education of
he children will need to be forced into the public
fact, the voluntary attendance in Massachusetts
igher per cent than is to be found in any other
States.

nty-three per cent of the children between five
rs of age is too large a number to be away from
ols; much too large for either the safety or the
e State.

The children should not only be enrolled on the school registers, but they should be constant in their attendance.

Parents do not always know the mistake they are making, when they, without sufficient reason, either allow or require their children to be absent for a time from their classes.

In this way they violate the spirit of the law, and they inflict a great injury on the schools to which the pupils belong, and they do an irreparable wrong to their children.

One of the conditions of a good school is a punctual and constant attendance of all the pupils upon all the school exercises of the term. A successful school cannot exist without this condition exists also, and these are some of the reasons: —

1. As the lessons in each of the branches pursued should bear a logical relation to one another, if the pupil loses one lesson, he has lost the connection between what he has already studied and what he is yet to learn. At the end of his broken term he will find his knowledge to be a miscellaneous mass of unrelated facts.

2. Irregularity in attendance leads to the formation of bad habits, and the effect of it will be surely seen when the pupil comes to perform the duties of practical life.

3. The absence of some pupils inflicts an injury on the class to which they belong.

The class will be delayed, and its enthusiasm taken away, by the slow progress and want of interest of those who have their attention divided between work or play at home, and study at school. Neither absence nor tardiness can be endured by a school that attempts to secure the best results. The statutes require a regular attendance of at least twenty weeks of every school year. Many school committees insist upon a constant attendance as a condition of a continued membership of the schools; and every wise parent will see to it that nothing under his control shall interfere to prevent his child from being regularly in his place every morning during his short school life.

A regular and full attendance upon the schools is so necessary that the statutes of the Commonwealth make it to be the duty of all to co-operate in securing this result.

It shall be the duty of the resident ministers of the gospel, the selectmen, and the school committees, to exert their influence, and use their best endeavors, that the youth of their towns shall regularly attend the schools established for their instruction.

SCHOOL-TEACHERS.

ct. 28, of the statutes requires the school com-
ract with the teachers of the public schools.
tees are to require full and satisfactory evidence
noral character of all instructors employed by
y are to ascertain, by personal examination, their
for teaching and capacity for the government of

d of every instructor of a town or district school,
from the school committee a certificate in dupli-
alifications, one of which shall be deposited with
before any payment is made to such instructor on
services. Then, if the teacher keeps his register
he forms prescribed, he shall be entitled to his

committee may dismiss from employment any
ver they think proper, and such teacher shall re-
ensation for services rendered after such dismissal.
must be supplied with good teachers, or they will
twithstanding all that external agencies may do

thought that almost any one could teach school,
primary school, because the teacher's work is so
easily done.
ginning to be known that one must have had a
erience or a thorough professional training before
a satisfactory manner.
is not full of perfect teachers. We may think
n a necessity compels us to look for one, then we
r surprise, that there are almost none to be found.
ll requires an extensive and accurate knowledge
s to be taught, a knowledge of the human facul-
nethod of teaching based on this knowledge.
lso the power of self-control, a cultivated taste,
n judgment, a successful experience, and an un-
iasm.
her should be retained quietly and for a long time

here are so few good teachers to be found.
good teacher is a necessary element of a good

3. Because waste will always be caused by any change tha can be made, except it be from a poorer to a better teacher.

A skilful, faithful teacher is one of the richest blessings tha can be granted to any community. It should be remembered that, in choosing a teacher for our children, we are choosin the characters we would have them possess.

The teacher should be trained to a good methodof teaching and it should be his special object to communicate to his pupil a good method of study.

At a recent meeting of the Education Society in England, discussion on elementary science teaching ended in these conclusions: that natural knowledge, or a knowledge of natura objects, should be taught, not from books, but from things themselves; that the lessons should not consist of information committed to memory, but of knowledge acquired by the child' own observation and experience; that by object-lessons he shoul be led to observe the natural facts around him, and to exercis his own powers of observation and comparison, and in this wa to acquire his own knowledge and the true method of learnin

The ends to be secured by study are three: —

Knowledge, mental training, and a method of thinking.

These ends are to be occasioned by such a method of teaching as will bring the true object of study into the presence o the pupil, and will require him to study it by an exercise of hi own active power.

SUPERINTENDENCY.

"The school committee in each city or town where there is n superintendent of schools, or some one or more of them, for th purpose of organizing and making a careful examination of th schools, and of ascertaining that the scholars are properly supplied with books, shall visit all the public schools in the tow on some day during the first week after the opening of suc schools, and also on some day during the two weeks precedin the close of the same; and shall also, for the same purposes, visit without giving previous notice thereof to the instructors, all th public schools in the town once in each month; and they shal at such examinations inquire into the regulation and disciplin of the schools, and the habits and proficiency of the scholars."

This act of superintendence of the schools is a most importan one for their welfare and good conduct.

learning and experience and time to organize a
e out a good course of studies for its use, to select
to introduce them into their office by a proper
o plan out a good method of teaching, to select
oks, and to be able to direct the internal affairs
to the best results. That this may all be done,
mittees of the Commonwealth should be supplied
men to act under their authority, as their agents
which is properly implied in school supervision.
would save us from a vast amount of waste now
ant of experience and philosophy in the adminis-
educational interests.

g the schools the first means to be provided are
ructed schoolhouses. If we compare the ancient
ith those of modern times, we shall find in the
od expression of that change in public sentiment
growing appreciation of the wants and the value
educational institutions. The ancient structures
ensions to comfort or to architectural beauty.
nerally small, imperfectly lighted, and utterly
ation, except through open windows and doors,
e cracks which the forces of nature had opened
coverings. They were wholly exposed to the
he summer's sun, and they were warmed in win-
which put the different parts of the body of
o widely different temperatures at the same time.
quently located on the top of some high barren
d into some narrow waste place in the valley just
o receive them. Not much attention was paid in
ion to proportion or to ornament. Nothing was
to break up the monotony of stiff outlines, or
ve the sobriety of barren walls. A plain enclo-
tructed, and the schoolhouse was ready for the

urniture was of the same character as the building
It was constructed without much reference to
ealth. The growing bodies of the young pupils
ut of shape as they sat day after day on their
d seats; while the purity of their blood was dis-
bad air they were compelled to inhale, and the
eyes was destroyed by the glaring light that fell

direct upon them, or by the darkness in which many of the o
schoolrooms were enveloped. Our modern schoolhouses a
improvements on the old; but still they are defective in th
means of ventilation, lighting, and heating, and in almost
those contrivances that have reference to the physical well-bei
of the pupils.

It may not be out of place to give a few hints concerning t
points that should attract attention in building and furnishi
schoolhouses.

SCHOOLHOUSES.

Situation. — The schoolhouses for the public schools shoul
be in pleasant places, away from every thing that can distur
the quiet activity of the mind or the health of the body. "Th
very place of instruction should be rendered as attractive a
possible, on account of the educating influences of extern
things." The school-grounds should be elevated somewha
above the general level of the surrounding country, and the
should slope towards the south. If elevation and slope ar
observed in the selection of school-grounds, they can be easil
drained, and the schoolhouse will be exposed to currents o
fresh air, and to the more direct rays of the sun. The soil o
the grounds selected should, if possible, be sandy or compose
of loose gravel. In either case the water that falls upon it an
does not flow off will be quickly absorbed or evaporated. I
would be well carefully to avoid building on grounds forme
by earth deposited over low and swampy places; for the gase
that would work their way from below to the surface woul
endanger the health of all exposed to their effects. The ground
should be of sufficient extent to allow ample room for th
healthful exercise of the pupils. In the case of mixed schools
the play-grounds should be divided by enclosures into two parts
and one assigned to the boys, the other to the girls.

Building-Material. — Economy and comfort are more full
secured in building schoolhouses by the use of either stone o
brick than of wood. The first cost of stone or of brick build
ings may be more than if constructed of wood; but when dura
bility is taken into account, as it always should be in the con
struction of public buildings, economy favors the use of th
more solid materials. Comfort is more fully secured also by th
use of such materials, as they are better adapted to furnish the con
ditions of an even temperature both in summer and in winter.

size of the school-building must be determined of pupils that are to occupy it. The best au- the opinion that at least two hundred and fifty pace in the schoolroom should be allotted to each mount would allow to each twenty square feet of om twelve feet and a half in height. Very large e not desirable. If the school contains a large ils, it is better to arrange them in separate rooms rvision and instruction of teachers who may hold assistants to the principal.

e shape of the main schoolrooms should be that hose width should bear to its length the propor- three.

's desk and platform should be on the north side he latter being elevated about eight inches above e door through which the pupils enter the school e on the south side, and open outwards, as should f the building.

If the teacher's desk is on the north side of the d the entrance doors for the pupils are on the e pupils can be easily arranged so as to face they are seated at their desks. There should be n the room opening towards the north, as they e light to fall directly on the eyes of the pupils. indows at the right side or at the back of the obstructed, — in the first case by his hands and ed in ciphering, drawing, or writing; and in the the intervention of the whole body between the d the pupil's books. In so far as the pupils are ht from the left and the back does not harm the rom the left will fall properly on their work.

vs of a schoolroom should open directly upon and the light passing through them should not by projections of any kind on the outside of the

of the windows should be about four feet from e the top should reach as near to the ceiling as ransom window should be placed over each door. of light admitted may be regulated by the use of The amount of window surface must be equal ed and fifty square inches of glass for each pupil, or about one-eighth of the floor space. The walls of the room may well be colored a neutral gray for the comfort of the eye while the ceiling should be left a pure white for the bette reflection of the light.

Desks and Seats.—Great pains should be taken that seat and desks are constructed and arranged with special referenc to health and comfort. Schoolrooms should in all cases be furnished with single desks. The height of the seat should be, a nearly as possible, equal to the length of the pupil's leg, measured from the knee to the sole of the foot.

If the seat or chair is supported by an iron leg, which slides u and down in a hollow cylinder, it may be adjusted to the want of the pupil. That the pupil may not slip forward in his seat it should be slightly inclined backward. Authority approve of placing the front edge of the desk one inch in front of the seat, and of making the vertical distance from the top of the desk to the top of the seat equal to the length of the fore-arm of the pupil who is to occupy it, or to one-sixth the height o his body.

The following table will show with sufficient accuracy the lengths and widths of the various sizes of desks required fo primary, grammar, and high schools:—

	Length.	Width.
For Primary Schools	18 inch.	12 inch.
Grammar Schools	24 inch.	16 inch.
High Schools	26 inch.	20 inch.

The pupils should have easy access to their seats. To secure this end, the spaces between the rows of desks should be from twenty inches to two feet in width.

As diseases of the spine and of the eyes are frequently caused by ill-contrived seats and desks, too much care cannot be taken in their construction and arrangement.

Platform.—The teacher's platform should extend across the end of the north side of the schoolroom, and should be at least six feet in width and eight inches in height.

Upon each end small closets may be constructed for books, and for objects and apparatus to be used as the means of teaching.

ls. — It is convenient to have blackboards con-
irely around the room, wherever spaces are left
rs and windows. They should be four feet wide,
to within two and a half or three feet of the floor.
ard back of the teacher's platform should extend
on the wall, so that topics relating to order or to
ay be written to remain throughout the term if

n which the blackboard is to be spread should be
as possible before the material is put upon it:
surface will soon be broken by the jarring it will

ases, etc. — Every schoolroom should be well sup-
itable places for keeping collections of natural
ratus, books of reference, and text-books which are
the school for teaching and study.
. — In the report of the Massachusetts Board of
73, is to be found the following: —

> considered that one-fifth of our population are children, that
> ne growing, formative, susceptible stage of life; and they are
> t readily, but most permanently, affected by every influence
> e subjected. Without doubt the instinct of childhood is for
> constant, change of position and interest during the waking
> steady occupation within a restricted space may be fairly
> al for children. But, since they cannot have an education
> egree of violation of the normal conditions of childhood, it
> first importance to maintain a constant, jealous watch over
> hool-children, and to persevere in the attempt to harmonize
> nd influences with the healthy instincts of childhood. Con-
> ed air, enforced quiet, prolonged mental effort, the use of
> all objects in trying arrangements, are all in some degree
> ssary to school, but threatening danger to the health of the
> educe this to a minimum, and there maintain it, is a public

ie State Board of Health sent out among other
following: —

> – How can our schools be modified to improve their hygienic
> As to tasks and discipline; (*b*) as to physical conditions.

es recommended in the answer to question (*a*)

ig tasks	38
riminating teachers	37
ine in methods	32

Lightening discipline	25
More cheerfulness	24
Abolishing marking	16
Pursuing fewer studies	14
More variety of exercise	13

The following were given in answer to (*b*) : —

Better ventilation	77
More equable heating	27
Regularity in daily physical exercise	21
More frequent change and freedom of position	21
Better seats and desks	17
Shorter sessions	17
Better lighting	14
More frequent recesses	13
Fewer pupils to each teacher	10

It is a well-ascertained fact that the ventilation of our schoolhouses is almost universally defective. It is also true that every good system of ventilation is expensive.

In securing perfect ventilation three things must be done.

1st, A supply of fresh air must be obtained. 2d, It must be warmed before it is brought into contact with the pupils. 3d, It must be excluded from the room as soon as it has been once used.

For a complete method of accomplishing these three ends, reference may be made to the Report of Massachusetts Board of Education for 1878, Appendix A, written by D. F. Lincoln, M.D., Boston : —

> " An expensive system of ventilation cannot always be constructed for the country schoolhouses. A few hints may be given, that if observed may lead to some improvement in the ventilation of even those school-buildings that are not furnished, and are not likely to be furnished, with an elaborate ventilating apparatus. If the schoolrooms are provided with double windows, the expense for fuel will be much lessened, and they can be used as a means of direct ventilation. Cold air from without, coming in contact with a single thickness of glass, cools rapidly and to a considerable extent the air within the room. This creates a draught near the window which not only lowers the temperature of the room, but is a source of danger to those sitting within its reach. Double windows will prevent both of these results; besides, if the lower outside sash be slightly raised, and the upper inside sash be slightly lowered, a current of fresh air will pass up between the two sashes, and enter the upper part of the room, having become partially warmed on its passage. A simple method of introducing fresh air is to raise the lower sash of a single window three or four inches, and place under it a board that will fill the opening. This arrangement will admit an ascending current of fresh air from the upper part of the lower sash. If a narrow

ed at the top of the upper sash, having its upper edge slightly ds, then whenever the sash is lowered a few inches a current l pass in, striking the ceiling, and be warmed before it comes the pupils. If the schoolroom is heated by a stove, pure rought in contact with its heated surface through a flue leads. The stove should be surrounded with a sheath of iron or an air-space, into the lower part of which the fresh-air flue The air coming in contact with the stove would be warmed; e the sheath, would distribute itself over the room.

of the stove should open into the room, and be excluded ll connection with the air-chamber. If furnaces are used, e constantly poured into the rooms through the registers. ir in a room has been once used, it should be excluded. This ess of ventilation is not easily accomplished. If the heating described, much of the bad air of the room would be drawn nt which is constantly passing over the fire.

well if every schoolroom were supplied with a fireplace, as a ding vitiated air, although the principal heating apparatus stove or furnace. A metallic frame should be placed before to protect the floor and the children. The pipes or flues in y stoves or grates should be as nearly vertical as possible, ossible from sharp elbows and curves, as a sharp bend diminy of the draught. The velocity may be regulated by use of air may be expelled, also, through ventilating ducts, cony room of the building, and extending from the floors to the

ng should be made in each duct near the floor, and another in each room, as ventilation may be quite as necessary from om the lower part of the room. These openings may be re, by slides constructed for the purpose. An ascending curoduced in the duct, by placing at its base a coil of pipe or a ed with the furnace. The cellars of schoolhouses should be the same thoroughness and care as are exercised in purifying . The flues for the introduction of fresh air into the buildhot-air chambers of the stoves and furnaces, should rise on the building, several feet above the ground, and should be ire netting, that neither foreign substances nor impure air, ground frequently, can enter them.

There are four modes of warming schoolhouses, — by the en fire, from stoves, from hot air, and from steam furnaces. to be preferred, in so far as pure air is concerned. Soapstone l, if constructed with a hot-air chamber, as already described. y be endured, if they are large enough to warm the air of ut being themselves over-heated. They should always be hot-air chamber and a fresh-air duct or flue. Hot-air furf made of wrought-iron, as in that case the noxious gases e furnaces will not so readily work their way through the n, and mingle with the air that rises into the rooms through Great care should be taken that sufficient heating power be put into every school-building to warm it easily. If this direction is observed, the heating apparatus will last longer, and it will not be necessary to heat it to such a degree as to vitiate the air that may come in contact with its surface. The use of a sufficiently large apparatus will result in an economy of fuel. In contriving a method for warming a building it would be well to bear in mind that 'any method is vicious which merely warms the air again and again;' or which brings the air to be used in direct contact with overheated surfaces."

The heating and ventilating apparatus of all our school-buildings should be put in under the superintendence of those who understand the philosophy of these things. When it is used it should be under the care of those who are skilful and faithful in its management.

Temperature. — The temperature of the schoolroom, according to best authorities, should be kept at about 68° F.

Sewerage. — The evils arising from defective sewerage and neglected privies in connection with schoolhouses are too well understood to need description in this place. It will be necessary simply to give a few hints in regard to their construction and management. There should be two privies for each mixed school. If they are located outside of the school-building, place them in the rear part of the grounds and widely separated from each other. Let the approaches to these buildings be concealed from each other, and from the public street as much as possible, and so constructed as to prevent exposure to mud or to storm. The buildings should be thoroughly made, and so contrived that no unpleasant sight or disagreeable odor shall disturb the senses. It is important that they should be kept scrupulously clean and free from all marks of abuse.

If water-closets are constructed in the school-building, they should not be placed directly under any schoolroom or room constantly used for school purposes. It would be better to place them in projections made for the purpose, so that they may be easily and thoroughly ventilated by openings leading at once to the fresh air. Let the tanks for the closets always contain a good supply of water, and let an abundance of water be used in keeping the soil-pipes and drains clear of all solid matter. The pipes should be thoroughly trapped, that ample protection may be afforded against the mischief generated in cesspools and sewers.

It is the duty of the school committees of the Commonwealth to protect the children from the perils arising from imperfectly

schoolhouses and from neglected school-grounds. Old
ildings should be examined and put in good order,
e wholesome, before the children or their teachers are
to occupy them for a day; for it will avail little to
intellect into a state fitted for the service of an active
at the same time expose the body to disease and death.
ver new buildings are to be erected, the builders
egin their work by choosing suitable school-grounds,
planning the construction of the houses that are to
on them, with special reference to comfort, conven-
lth, and beauty. In furnishing the buildings, and in
the grounds, it should not be forgotten that the
of beauty in either nature or art produces happy
s on the minds of children, and has a tendency to lead
ave a high regard for beauty in moral actions.

Course of Studies.

se of studies is a collection of subjects arranged in the
which they should be pursued. A complete course is
includes all subjects necessary to be taught as occa-
ll required knowledge and mental discipline.
re are kinds of knowledge to be obtained, and kinds
ine to be produced, a course of studies may be divided
ps or grades. The number of distinct grades of
ill determine the number of grades of schools a
stem will contain. In our system we have three
The first is called the primary grade, and is distin-
rom the other two by confining itself to subjects relat-
e qualities of objects and to language. The second
lled the intermediate, directs the attention of the
an analysis of the objects of his study, for those char-
which furnish the basis of classification. The third
entific grade, and directs the student to a study for
r principles, and for a knowledge of classes.
ht selection and arrangement of studies in the differ-
s are of the highest importance, as they determine the
amount of knowledge and culture the pupil is to

nciples to be observed in making a course of studies
Select such subjects as will furnish occasions for use-
edge. 2d, Select the subjects best adapted to excite

that activity which will produce the best mental training. 3d, Make such an arrangement of the subjects as will allow the pupil to acquire the different grades of knowledge in the order of their dependence. 4th, Make such an arrangement as will occasion that activity only which is natural for the powers to exert.

Ths following is a simple outline of the topics arranged in a course by the Plymouth County School Committee Association.

This course may not be considered a model for close imitation, but it may serve to aid those who are laboring to do what has never yet been done,—to construct a perfect course of studies for the public schools.

1	Reading.	Spelling.	Writing.	Language.	Numbers.	Drawing.	Singing.	Objects, qualities, parts, for names, with Reading.	
2	"	"	"	"	"	"	"	Form, color, size, weight.	
3	"	"	"	"	"	"	"	Form, color, size, weight, place, direction.	Animals, plants, minerals.
4	"	"	"	"	Arithmetic	"	"	El. Geography. Form, color.	" "
5	"	"	"	"	"	"	"	" "	" "
6	"	"	"	"	"	"	"	" " El. Hist. U.S.	" "
7	"	"	"	"	"	"	"	" " History U. S.	" Definition and Division of Forms.
8	"	"	"	"	"	"	"	Geography. " "	Physiology, Hygiene. El. Physics.
9	"	"	"	"	Mensuration, Book-keeping.	"	"	Civil government, town, state, nation.	" Elementary Chemistry.

The course thus sketched is for nine years. In addition t the topics named in the course, the teacher is to provide fo physical and moral training.

Physical Training.—It should be the constant endeavor o the teacher to influence his pupils to perform such physical act as will occasion health, strength, and an easy, graceful carriag of their bodies; such as will lead to the formation of good habit in taking food, exercise, sleep, and recreation; in sitting, standing, and walking; in breathing, and in the use of the voca organs; and in protecting the body against the unfavorabl effects of the weather. Attention should be given to the conditions of the schoolroom, with reference to light, temperature ventilation, and the physical comfort of the pupils. Gymnasti exercises should be given for physical training.

Morals and Manners.—The right training of the moral natur is the most important of the teacher's duties. He should teach his pupil what *ought* to be done in the various relations of life He should train him to *do* what ought to be done, and that i should be done with a good spirit, until right habits of acting are formed. The young should be trained to habits of obedienc to human and divine authority, of truthfulness, honesty, industry, order, cleanliness, and neatness; to the observance of th Golden Rule; to behave well in the school, on the playground on the street, and in all places where the duties of life may cal them. The teacher may give effective object-lessons in morals by his own good example.

Order of Teaching.—The order to be followed in teaching every subject is: 1. To present the object of thought to the mind of the pupil. 2. To direct his mind in the acquisition o knowledge, and in the exertion of its power. 3. To lead the pupil to use good English words and constructions in expressing the ideas and thoughts he acquires.

For a more complete plan of studies and mode of teaching see Report of Board of Education, 1879–80.

Means of Teaching.

Color.—Standard primary colors, palette, chart of colors cards, worsteds, colored balls.

Form.—Box of forms, clay for modelling, natural objects.

Size.—Solids of various sizes, surfaces of various sizes, rods of various lengths.

e. — A foot-rule, yard-stick, Gunter's chain.
in judging of Size. — Rods of various lengths,
kind but of various sizes, solids of various sizes.
system of weights, and a balance.
should provide himself with the units of all the
ging to both the English and French systems of
asures.
Numeral frame, oblong blocks, bundles of small
tc.
Geography. — Large terrestrial globe, small globe
and covered with slate-surface, moulding-board,
s, and materials for constructing maps.
eralogy, and Zoölogy. — In the study of natural
should be, first, an examination of the objects
facts. In the scientific study of these objects,
the facts is to be generalized, and classes formed.
en, of teaching natural objects must always be
nselves.
ary Knowledge, and for Classes. — The objects
e means of teaching will be suggested by the
f study. See Report for 1879–80.

Physics.

tension, impenetrability.
aching Extension. — A rod, a thin board, and a
the three dimensions.
ty. — A hard stone, a nail and a hammer, a pop-
for water, a tunnel, and some tissue-paper, for
t no two solid or gaseous or liquid bodies can
e place at the same time. As the means of test-
f what has been illustrated, use a piece of pine
th, and a needle. Show by these that a nail en-
l, and a needle the cloth, push aside the atoms,
t penetrate them.
qually simple, all elementary topics in physics
ted. Teachers, aided by their pupils, will find
repare for themselves all necessary means to be
g and in study of both elementary physics and

to be taken in preparing to teach objectively
wledge in either of the above-named branches,

is to make a proper selection of topics, and arrange them in the order of their dependence. The nature of the topics will suggest to the skilful teacher what means he must provide for illustration. After providing the means, the next step is to choose a method of teaching. The method is the same as that employed in all right objective teaching, — the teacher presents the phenomena to the pupil by means of an experiment; the pupil observes what is presented, and describes the facts he learns. In this way the elementary pupil may obtain a real knowledge of such facts as will enable him when he comes into the high school to enter upon the study of physics considered as a science.

Chemistry.

Chemistry is to be pursued by the same method as that suggested for the study of physics. Some of the simple means needed for illustrating the topics which the subject presents are, — a half-dozen five-inch test-tubes, three eight-inch test-tubes, corks, a half-dozen pieces of narrow glass tubing, a dozen tobacco-pipes, three or four glass fruit-jars, two pint bowls, two tumblers, three tinned iron teaspoons, a three-cornered file, a round file, a lamp, two small glass tunnels, three small porcelain dishes, one two-quart galvanic cell, and chemicals.

Text-Books. — The pupils should be supplied with an abundance of good books of reference, to be used not as the original sources of knowledge, but to aid and guide in the study of what the teacher has before taught.

Method of Teaching. — The definition of teaching given in the Report of Board, 1879–80, seems to be a sound one, and is as follows: Teaching is that act which consists in presenting objects and subjects to the mind so as to occasion knowledge, mental training, and a good method of thinking and acting. If we can determine what are the principles of teaching, we may learn from them the true method of the art.

A principle is that upon which any thing depends.

Principles of Teaching. — The ability to teach depends upon (1) the ability to bring into the presence of the learner whatever is to be made the object of thought; (2) to teach elementary before scientific knowledge; (3) to teach the whole before its parts; (4) to teach the parts of objects in their natural order; the parts of subjects, in their logical order; (5) to direct the pupil in his work, without attempting to do the work for him.

l arising from the practical application of these
ie oral objective method. To apply this method
e the best results requires a professional training.
chools of the Commonwealth offer opportunities
ng.

EQUISITES OF A GOOD TEACHER.

ll requires a sound body, a cultivated mind, an ex-
edge of things, some acquaintance with the laws
e faculties in their efforts after truth and strength,
g, a successful experience, and unlimited enthusi-

d the last of these requisites of a good teacher
most part, the gifts of nature; the others are
But whether they are the direct gifts of God, or
of human labor, they are all necessary to the
est results.

s supposed to be the instrument that the mind
ning all those acts which terminate on external
ny kind of things that may hold objective rela-
e is such a thing as an external world existing
f ideas, and if our physical bodies are the media
our minds are brought in contact with it, then
to follow, that the validity of our knowledge of
f matter will depend somewhat upon the sound-
dies.

are blind, then the mind cannot see. If the ears
ie mind cannot hear. Or, if the senses of sight
re unsound, then the mind will be in danger of
o object of sight is present, and of hearing when
ind. If the *elements* of our knowledge are unre-
wledge itself will have nothing real correspond-
less our simple ideas correspond to their objects,
of truth is impossible; besides, there is no right
t that which results, or has a tendency to result,
ry of the truth.

l is affected by its own acts, if a poor body pre-
reaching out and taking hold of things as they
hen such mental acts will be occasioned as will
ken the mind, and render it unfit for reliable ser-
reat mistake to suppose that all exertion of active

power strengthens the mind. Unless the *conditions* of activity are complete, the more the mind attempts to do, the more confused will it become.

Again, our rational emotions owe their origin and their character primarily to our intellectual acts; but as our intellects are disturbed by physical weakness, so, indirectly, are our sensibilities seriously affected by the unnatural conditions of our bodies. We can never tell whether we have occasion to feel pleasure or pain, why we are melancholy or cheerful, whether there is cause for hope or despair, until we have examined our physical organism to see how the organs are performing their functions. The body is a physical thing, and the mind is spiritual, and we cannot tell through what mysterious medium the two produce their effects, each on the other; but we do know that in this world neither can live without the other: we know also that good physical health is essential to all true activity and to all harmonious development of the powers.

The teacher, then, should strive for a sound body with as much fidelity as for sound learning and good methods. In the pursuit of this important end he should receive aid and co-operation from all those who hold authority over him, as well as from those who are subject to his control. The amount of service required of him should have some well-defined and rational limit. His vacations and resting days should be appointed with reference to the fact that school-teaching is the most exhausting labor known to the race; that rest is for the renewal of those vital forces which the mind uses in the exertion of its power, and that ample physical rest is as necessary to mental life as it is to the life of the body.

The conditions of work, productive work, are strength, courage, and an abundance of good material to work with and upon. The ability to rest depends upon the existence of leisure, cheerfulness, and an aversion to the exertion of active power. But courage and cheerfulness, two essential conditions of rational effective work and successful rest, are yet impossible to the teacher, if he is made the subject of ignorant or unsympathetic criticism. We were made to work together for common ends. Discord is as unnatural as disease. Individuals acting alone are weak, but when combined into harmonious communities they become strong, and can do any thing which human effort is adapted to accomplish.

said of the relations of good physical health to
nd to all reliable mental activity, of the rela-
ulness and courage to physical health, and of
a sympathetic co-operation to cheerfulness and
her new nor beyond the experience of every
ner, and every superintendent of schools. But
of these things is not always observed; and
s an inevitable consequence, a waste of strength,
that joy which is an inseparable companion of

is a *condition* for successful teaching, while
objects of knowledge are the *means*. If we
ion to the ends every intelligent teacher aims to
learn what he must know to secure them.

ow, among other things, for what purpose his
zed, and his pupils taken from their homes, both
the state and by the free will of parents, and
ne under the parental as well as the educational
l-teacher. If it is that they may acquire useful
n the teacher must know what *is* useful knowl-
hat processes it is best acquired. If it is such a
powers as will enable the children, when they
nbers of society, to perform justly the duties of
he must know in what such training consists,
ocesses the mind must be subjected that it may
If the child is to be treated in his school-work
vere an end unto himself, then the teacher must
rform such acts in study, in recitation, in play,
school-rules, as will train him into the posses-
ndividual character.

ner is to do all these things, viz., teach useful
train the children into good citizens, and good
st understand the philosophy of teaching, and
e branches of learning which utility and human
quire to be taught. The philosophy of teaching
s will determine his practice. If he has no well-
losophy, then he will have no orderly or con-
If his principles are false his methods will be
false also. No teacher ever taught well who
imple ideas of things can be awakened in the
rst time by words, or that definitions and rules

should be committed to memory by elementary pupils before they are able to understand their meaning, or that a science can be taught to one before he has observed the facts of the science; or that the mind can acquire power without exercise; or that the acquisition of practical knowledge is the only acquisition that has any practical value. A teacher increases rapidly in value from the time he begins to study his work with reference to its results on the minds and characters of his pupils. He becomes a philosopher as soon as he begins to inquire into the nature of his pupils, and to study for the principles out of which he is to form his theories and his practice. From that time he will not voluntarily introduce into his school a topic of study without knowing the relations it holds to the ends of school life. He will no longer attempt to teach a branch of knowledge he does not himself understand. He will not continue to violate the laws of the human mind by the use of a wrong method of teaching or of school government.

But, however useful knowledge may be, it is not to be sought as an end in itself. Simply to know something, is not enough for beings who are so constituted that activity is life, and conscious activity is conscious life.

The great struggle of life is for power; and the one condition, Hamilton says, under which all our powers are developed is exercise. A repetition of an act adds to our faculties a facility in their use. This fact we know: the philosophy of it we cannot understand. We never perform our acts in the best manner until we have tried to perform them many times.

The value of skill appears in all forms of labor; but nowhere is it more imperatively demanded, or productive of more important results, than in that labor which has for its object the communication of knowledge, and the cultivation of human character.

The teacher, then, must add to his physical strength, and to his knowledge, a *special training* for his work. This he can obtain in two ways. One is by a long experience produced by teaching under self-direction; the other is by study and practice under one who is already a master. Both methods have produced good teachers; but the latter is to be chosen rather than the former, for we cannot afford to have our teachers groping their way toward skill with the chances against them of ever finding it.

to teach, study and practice should be com-
udy should have for its object the branches of
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eaching, and that no one should attempt to prac-
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im a reliable thinker on all the subjects he is
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ion of the conscience and the taste as will enable
nd choose what is right in actions and beautiful
as will lead him to have a proper regard for
sonal appearance, for manners, and for all those
nduct that constitute good behavior.
ions are the signs of a strong intellect, and they
the existence of a vigorous and persistent will;
become masters, rational acts are impossible.
with an abundance of good qualities, have failed
ntrol over their own emotional natures. Some
making their intellectual and moral judgments,
lose the respect of their pupils. Some are mor-
ious, and worry their pupils into despair by their
hers are affected by prejudices, and a disposition
er than approve.
the province of special training, to fortify the
lling into mistakes which occur often with those
est intentions, and who labor the most earnestly
success. If a teacher is trained to discover how
sleep, poor health, or a cloudy day has to do
ons, and with his judgments of the moral quali-
ls, he will compel himself to wait until his sleep
digestion has improved, and the bright sun has
the clouds, before he will attempt to inflict

merited punishment on what appears to be stupidity and ma ice; and then, when his own physical and mental machiner comes into good working order again, how glad he will be tha his power of self-control has saved him from doing irreparabl injustice to the best and brightest pupils to be found in all th schools! It is because the teacher is to stamp something of h own mental and moral image on the minds of his pupils, tha he must be a model worthy of their imitation.

To say nothing of knowledge and methods of teaching, n teacher with a well-trained intellect, a good heart, and a stron will, can fail of success. But the highest success, howeve requires that he add to health, to knowledge, and to trainin an irresistible enthusiasm : not that mere animal feeling whic expresses itself in bluster, without regard to any rational cau for its existence, but that deep, stirring emotion which aris from an over-mastering perception and love of the truth, - such a feeling as led Socrates to forget his sleep and his foo whenever he found opportunity to teach to others the nature virtue, the definition of temperance, or the reasons for belief the immortality of the soul; such as led Pestalozzi to reje all thoughts of wealth and fame, and to spend his life in co triving a system of instruction that would make prosperou and happy the beggar children collected into his schools; such as made Agassiz say that he had no time to waste in ma ing money.

Enthusiasm communicates itself to all who happen to be i its presence. It throws a charm over the driest subjects thought and the severest labor. It produces conviction befo one knows the reasons for his belief; and it leads one to a intense exercise of his powers, from the pleasures that atten the exercise.

The results of the teacher's work are absolutely necessary the life and progress of the race. If, then, he shall perform with that efficiency and spirit which good health, sufficie knowledge, a proper training, and a large enthusiasm will enab him to command, he will show by the results that he has th requisites of a good teacher.

Necessity of Right Early Training.

When the child begins to live his spiritual life, his mind ha no facility in the exertion of its active power, nor has it an tendency to act in any particular manner.

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e mind exercises itself in thinking, feeling, and
ns to acquire a facility in performing these acts,
ccompany the facility an inclination to continue
sily done. This facility and inclination consti-

ery young children that their mental faculties
, meaning that they have not yet formed habits
capacity of the mind for forming habits ren-
elopment possible.

se of development of the faculties is exercise.
may be derived one of the fundamental princi-
iethod of teaching. From the same truth may
an idea of the importance of early training.

s are developed by use, it follows that a method
it be devised which will present right occasions
exercise.

nd degree of activity the mind exerts during
loping period of its existence, determine its
st be placed in care of a skilful director from

to find, if possible, what ideas the mind in its
is adapted to form, what emotions its natural
duce, and what choices its natural acts of think-
will prompt it to make.

l interference by a controlling power must be
it the ends which nature has planned for the
for himself.

riod in every child's early life that the educator
in promoting the physical growth of the young
der his care.

hild is to live a physical life, and be controlled
ts largely by the animal principle of action. At
will spring up in his mind as the material
t in contact with his senses. His emotions will
rather than rational, and his acts will owe their
pulses of his nature rather than to his reason.
ding all this it should not be forgotten that the
begin to take on its character as soon as it
itself in producing its mental states.

n the spontaneous activity of childhood should
forced, but simply directed, into those forms

which will produce some useful elementary knowledge, or a least a thirst for knowledge, and lay the sure foundation of harmonious development of all the faculties.

We need, then, a system of training which shall precede th formal processes to which the child is usually subjected o entering the primary school. The true kindergarten seems t offer this training.

I say a true kindergarten; for, unless kindergarten training i philosophical in its nature and methods, it will be adapted t do more harm than can be done by the application of unnatural training in any one of our present system of schools.

This is due to the fact that the infant mind yields readily t external influences, and that early impressions are everlasting.

For these reasons, care should be taken that the youthfu powers are not checked in their spontaneous growth by arbitrary control, nor stimulated to premature activity by unnatura incentives, nor suffered to become warped in their character b a neglect to direct them to a proper and healthful exercise.

The young yield readily to authority, and are directed easil by example. It follows that those who are to direct youthfu development towards intellectual and moral character mus themselves be what they would have their pupils become.

They should be so acquainted with the laws in accordance with which the infant powers unfold themselves, that they may be able to co-operate with nature by removing all artificial obstructions, and supplying the conditions to a natural and easy development.

We are yet hardly aware in this country of how much consequence it is to the future progress of the child, that he be permitted from the first to grow up in the presence of wise and good instructors.

If the children from their earliest years are the objects o right influences, and are led to the natural exercise of their faculties, we have a right to expect that they will become fitted for a happy and successful life.

When the child enters the primary school, he will be put to reading, spelling, constructing words into simple sentences and his sentences into simple discourse. He will combine numbers, practise singing and drawing, and have presented to him a systematic course of lessons on the qualities of objects. He will be made subject to such rules of conduct as have for their activity of the intellect, sensibility, and will, as should ultimately lead to the power of com- l.

, the child, if possible, should have a previous

ence to his youthful nature, he may be so di- exercises that have amusement for their end, as it seven years of age, the primary school free , and with his powers trained to self-activity, tored with a rich collection of facts. He will for rapid progress in those studies which the are designed to teach.

dren could pass from a well-conducted kinder- courses of study, I am sure it would at once undation had been laid for rapid and successful

y those who have made the kindergarten system intelligent study, and have had experience in iced, that children trained under its influences y controlled, that they are superior in intelli- en who enter the elementary schools without g, that they observe with more accuracy, that re eager thirst for knowledge, and that they ter command of language.

, then the period of elementary instruction, as might be shortened, without subtracting from now secured.

vell if the spirit of the kindergarten could be public schools.

f study, or adequate representatives of the e brought into the presence of the children for n, and they should be permitted to obtain a em by an exertion of their own active power. the kindergarten, the teacher should do noth-

ablish the conditions of study, and then leave k out for himself his own knowledge and his

ern schools, the ancient custom of assigning ks to be studied, and committed to memory by been partially abandoned; but in the place of it a new custom has been introduced, which in too many case consists simply of lectures and explanations by the teacher.

The new method is no better than the old; for both alik make language the original source of our ideas, and they alik appeal exclusively to the passive powers.

Our elementary schools may learn also from the kinderga ten exercises, that there is an order of development of th powers to be observed, and a logical relation of ideas to be pro vided for, in all grades of instruction.

This order and this relation are not much regarded by ele mentary instructors; and there results from the neglect a unsystematized plan of work that has no definite meaning, o certain results.

A thorough knowledge of the philosophy of education i needed, to reduce our plans of instruction to unity.

TEACHERS' INSTITUTES.

The first teachers' institutes ever held in the Commonwealt were organized by the Board of Education in 1845. The were conducted after the manner of a public school. Th members were formed into classes; were required to prepar and recite lessons, and to submit to the routine and disciplin to which their own pupils would be subjected.

At this time the institutes continued for a week or ten days a small sum being appropriated to pay the board of those teachers who attended during the full period of time for whic an institute was held.

For the last few years the institutes have diminished in lengt and increased in number. The burden of entertaining a larg number of persons for a long time, and the loss caused b closing the schools for this time, were felt to be so great, tha economy demanded a change in the length of time for whic the institutes should be held.

They are now continued for two or three days only; the da sessions being devoted to illustrative lessons on the best metho of teaching the branches which the statutes require the publi schools to teach, and the evening hours to lectures designed t awaken a deeper interest on the part of the people in popula education.

The plan formerly pursued of inviting attendance, through notices sent out from the office of the secretary of the Board o ı indefinite number of towns, generally resulted ɔ small or too large a number of teachers. To of these results, the school committee of the institute was to be held extended invitations to vns, inviting only so many as could be convenıed. This plan has secured a more uniform l it has enlisted the sympathies of the committıs of the towns, by putting the institutes, in so .ment is concerned, under their control, and by somewhat responsible for the results of all the s plan has often enabled the smallest towns to ies to their more populous and wealthy neighıded to promote mutual respect, and to facilitate of opinions upon educational methods.

f time during which the institutes are held does affect the amount of labor required to organize case the town in which the meetings are to be owns to be invited, must be twice visited; proɔ be made; instructors are to be selected, and ned; illustrative apparatus is to be transported; ıg notes are to be distributed to the members, ers are to be organized into classes for schoolese things are to be done for every institute of the sessions can commence.

ing meetings an opportunity was offered for a by the people, as well as by the committees and educational topic having either a general or a After a half-hour of such work, a formal ven by some educator selected for the occasion, onnected with public instruction.

k consisted of teaching-exercises given for the strating the philosophy of teaching, and the true employed in teaching the various branches of ed to be taught in the public schools. A good anizing and controlling a school was also taught, rs of the institute were exhorted to employ it or onal method of their own contriving.

Lectures.

ayo delivered a lecture at eight of the institutes How does Education pay?" Col. T. W. Higginson gave an address at four, subject, “How to teach History ; Mr. Frank A. Hill at one, subject, “The Mound Builders ; Rev. W. H. Eaton at one, subject, “The Country Schools ; Professor W. H. Niles gave twelve lectures on “Holland and it People,” and six on the “Origin of Mountain Scenery ;” Mr. E A. Hubbard spoke at three institutes on “The School Laws o the State ;” and Mr. Dickinson at seven, on “The Duties o the Towns to the Public Schools.”

The lectures were of an interesting and instructive character and were appreciated by the large audiences that listened t them.

Instructors.

J. G. Scott, *Principal of Normal School, Westfield.* Botany, Physics, an Grammar.

Charles M. Carter, *Teacher in Normal Art School, Boston.* Industrial Drawing.

C. Goodwin Clark, *Principal Gaston School, Boston.* Geography.

Hosea E. Holt, *Teacher of Vocal Music, Boston.* Vocal Music.

George H. Martin, *Teacher in Normal School, Bridgewater.* Botany, Mineralogy, History.

Isaac J. Osbun, *Teacher in Normal School, Salem.* Physics, Chemistry.

William H. Niles, *Professor in Institute of Technology, Boston.* Geography and Natural History.

Robert C. Metcalf, *Principal of Wells School, Boston.* Geography.

Eli A. Hubbard, *Agent of the Board of Education.* Arithmetic and School Management.

George A. Walton, *Agent of the Board of Education.* Arithmetic, Reading, Penmanship.

J. W. Dickinson, *Secretary of the Board of Education.* Language, and Principles of Teaching.

Towns in which Institutes were held, and Number of Members in Attendance.

TOWNS.	NUMBER IN ATTENDANCE.
Brimfield	50
North Adams	78
Hubbardston	70
Northfield	74
Spencer	80
Pepperell	150
Plymouth	80
Merrimac	120
Brewster	70
Provincetown	67
Tyringham	55
Wilbraham	90

NS.	NUMBER IN ATTENDANCE.
nsburg	75
rne Falls	105
ough	109
ven	196
ester	162
	224
sville	124
nd	158
	30
-one.	2,167

tutes were held in eleven counties, in

ire	2
in	2
hire	1
en	2
ter	4
sex	2
	2
	1
th	2
	1
ble	2

r of towns represented was 131.

ber of school officers and citizens present was much in other years.

Special Report of Institutes.

institute of the year was held at Brimfield. The ted were Holland, Wales, and Sturbridge. Instruc- ven in geography, arithmetic, penmanship, reading, ge. The students of the high school, and a large the citizens, were present at the meetings. The as invited by the school committee of Brimfield, e chairman, J. L. Woods, who rendered efficient securing a large attendance and in suggesting the ercises.

Iiner, superintendent of schools in North Adams, rangements for the institute held at that place, invit- wns as far south as Pittsfield, and as far east as The exercises of the day and evening were of st to the large number present.

The Hubbardston institute was the third ever held in the town. The people of the town, as well as members of the institute, were greatly interested in the lessons taught. The hospitalities of the people were cordially and generously extended to members. The chairman of the school committee of Hubbardston gave his time and strength in aiding the instructors in conducting their exercises.

The convention held at Northfield, like those previously held in this pleasant town, awakened a good degree of public interest. The programme of exercises was essentially the same as that followed at Hubbardston. The institute was invited by the school committee of the town through its chairman, the Rev. J. L. Marsh, who expressed an active interest in its success by his presence at all its sessions, and by extending the hospitalities of the citizens to all its members.

The institute at Spencer was opened on the evening of the 19th of September, a day long to be remembered by the nation from its association with the death of President Garfield. This event cast a deep gloom over the exercises of the institute, and, had the instructors or the members followed the impulses of the hour, the meeting would have been at once postponed; but, assembled as we were in the interest of the children, we felt that we could not the better honor the memory of the teacher President, than by laboring with all earnestness in promoting a cause he loved so much, — that of popular education. Twelve day exercises and three evening lectures were given at this institute. The success of the exercises was due in no small degree to the Rev. A. S. Walker and to George L. Faxon, Esq., who manifested great interest in the entertainment of all in attendance.

The institute at Pepperell continued for two days. Twenty towns were invited by the committee of arrangements, nearly all of which responded to the invitation. Three of the towns were beyond the boundary of the State. Besides many citizens, and many friends of education from other towns, there were present a hundred and fifty members. The meetings were held in the town-hall, where the citizens spread bountiful collations for their guests; Mr. Lamb, principal of the high school, superintending, efficiently assisted by his pupils. The secretary of the school committee, Mr. L. P. Blood, was untiring in his devotion to the interests of the institute from its beginning to its close.

At Plymouth eight towns were invited, all of which were represented. As no institute had been held in this town for thirty years, a proposition from the Board of Education to hold one was promptly accepted by the school committee, who furnished every facility for conducting its work. The exercises of the day and evening were largely attended by the citizens. Thanks were offered to superintendent Charles Burton for the courteous manner in which he extended the hospitalities of the historic town to all in attendance.

The next institute in order was held at Merrimac by invitation of the school committee. The attendance of members was a hundred and twenty. Some of the towns near Merrimac did not send their teachers. One, as was afterwards ascertained, voted, through its school committee, to allow all teachers to close their schools, who were willing to deduct pay for the time they were closed.

The exercises of this institute were listened to with earnest and critical attention. The citizens of Merrimac were greatly interested in all the proceedings. Dr. H. J. Cushing, chairman of the school committee, by his intelligent and earnest efforts contributed largely to the success secured. The exercises were the same in kind as those already enumerated.

The institutes at Brewster and Provincetown, Barnstable County, were both attended by enthusiastic teachers, and by thoroughly interested school-committee men and citizens. A cordial and generous reception was given to all in attendance. The efforts of the school committees of both these towns were put forth to the utmost to secure successful meetings. Especial mention should be made of labors performed by Mr. Tully Crosby, chairman of the committee of Brewster, and by Dr. Henry Shortle, superintendent of the schools of Provincetown. At the close of the institute at Provincetown the following resolution offered by Dr. Newton was unanimously adopted: —

> *Resolved*, That we heartily approve the method of instruction presented by the officers of the Massachusetts Board of Education and their assistants before the institute at Provincetown, believing it to be far in advance of former methods.

The eleventh institute of the series was held at Tyringham, Berkshire County. The school committee of the town, Messrs. Sweet, Slater, and Howland, spent the whole time during which the institute continued, in providing for its wants. Free entertainment and free conveyance were furnished to all members. Tyringham is a quiet farming town lying in a beautiful valley, about five miles from any railroad communication. All the members of the institute came by carriage, some of them a distance of twelve miles. There were in attendance ten school-committee men and fifty-five teachers.

The institutes held at Wilbraham, Williamsburg, Shelburne Falls, and Foxborough, were each of two days' duration, and were conducted after a manner similar to others already described. The towns invited closed their schools, and sent in their teachers. The school committees came with the teachers, and with them entered earnestly into the study of the topics taught, and into the discussions of the subject presented. The people of towns in which the institutes were held all manifested the same good spirit in extending hospitalities to the members. The exercises in all cases had a direct bearing on the every-day work of the public-school teacher, and of the supervisor of the schools.

At Fairhaven the sessions of the institute were held in the audience-room of the Methodist church. The room was crowded with earnest learners during all the day and evening exercises. Many of the pupils of the high and grammar schools were constant attendants, copying topics, and making notes on the lessons taught. This act on the part of the young pupils was a most gratifying evidence of the excellent instruction imparted in the schools of Fairhaven. Rev. Henry Harrington, the distinguished superintendent of the public schools of New Bedford, was present with members of the school committee and nearly all the teachers of that city. It was the universal expression of those present, that the institute was an interesting and profitable one to all its members, as well to those who were skilled in the art of teaching as to those who were without experience. Very efficient service was rendered at this meeting by the secretary of school committee of Fairhaven, Mrs. Lucy M. Davis; by Mr. G. H. Tripp, principal of the high school; and by Mrs. L. H. Robertson, principal of the grammar school.

The following resolutions, offered by Rev. G. E. Fuller, were adopted by a unanimous vote at the close of the institute: —

Resolved, That we, the citizens of Fairhaven and vicinity, desire gratefully to acknowledge our indebtedness to the managers of the teachers' institute for the rich, profitable, and interesting exercises we have had the pleasure of attending and listening to for the past two days.

Resolved, That we shall ever hold in high appreciation the entertaining and instructive lectures by Professor William H. Niles on "Holland and its People," and by Mr. Frank A. Hill on "The Mound Builders."

The institute at Winchester was the first ever held in the town, and was somewhat peculiar in its plan of organization. The secretary of the school committee of Winchester, in extending invitations to the towns, had also requested a return of the names of their teachers. The list secured was furnished to the conductors of the institute, who, for their own records and for the convenience of the committee of arrangements, called the roll at the commencement of each session. In this way it was known that every teacher of the one hundred and sixty-five invited was present, with three exceptions, — three being absent on account of sickness. The hospitalities of the town were generously expressed by the very bountiful collations furnished for the noon and evening meals of the two days during which the institute continued. To Mrs. R. C. Metcalf and her young lady assistants is to be given the credit of arranging the collations with great skill and good taste.

At the closing session the following resolution was offered by Alfred S. Hall, Esq., and unanimously adopted by the convention: —

Resolved, That the sincere thanks of the committees, teachers, and citizens who have attended these exercises, are extended to the Board of Education for providing us an institute of such excellence; that to each of the lecturers and instructors of the institute we give our thanks for their learned and valuable counsel and addresses. They have interested and entertained us, and have left us lessons which will be remembered with profit and delight.

The largest institute of the year was held at Saugus. The number of teachers and school officers present was two hundred and twenty-four. All the teachers invited, with two exceptions, were in attendance: two were detained by sickness. The character of the institute, the enthusiasm of the teachers, and the marked hospitality of the citizens, all resembled closely what was experienced at Winchester. Mrs. M. P. Sweetser, secretary of the school committee, was the efficient agent in providing for the institute a most bountiful entertainment.

At the close of the sessions a resolution was offered by Superintendent O. B. Bruce, commending the towns for closing their schools, the teachers for their prompt attendance, the instructors for their valuable instruction, and the people of Saugus for their hospitality. The resolution was passed by a unanimous vote.

An institute of one day was held in each of the following towns: Whitinsville, Rockland, and Clinton.

The convention at Whitinsville was called by the Worcester South School Committee Association, which embraces the school officers of the valley of the Blackstone River south of Worcester. The programme of exercises was prepared by the association, and the officers of the Board of Education were invited to aid in carrying it out. After the lessons were taught they were thoroughly discussed by the members of the institute. The plan of the meeting had its origin with Superintendent Dr. R. R. Clarke of Whitinsville, a zealous and self-sacrificing friend of the schools and of popular education. He was aided in organizing the meeting by all the members of the School Committee Association. More of the elements that affect the schools were here brought into fortunate conjunction than at any other institute held during the year.

The institute at Rockland was honored with the presence of his Excellency Gov. Long; Hon. Henry B. Peirce, Secretary of State; J. A. McLellan, Inspector of High and Normal Schools in the Province of Ontario; and Dr. Larkin Dunton, Principal of the Normal School, Boston.

They all expressed their approval of the exercises, and their pleasure in observing the interest manifested in them by the members of the institute. The citizens of Rockland expressed their good-will towards the cause of popular education by providing abundantly for the physical wants of the teachers present.

At the close of the meeting, resolutions were passed expressing a full appreciation of the value of the exercises presented, and of the hospitality of the people of Rockland.

The Clinton meeting was strictly a town institute. An invitation was extended by the school committee, through its secretary, Col. Edward G. Stevens, to the secretary and agents of the Board, to visit the public schools of the several grades, and to conduct, in a somewhat familiar way, exercises illustrative of the method of teaching the common-school branches and of managing the schools. Nine primary schools, the grammar and the high school were visited in the forenoon, and the institute work was taken up in the afternoon. This consisted in part of criticising quietly what had been observed, and in part of explaining good methods of teaching, and training the young.

It is believed that the institutes held in the Commonwealth last autumn have been productive of great good. The exercises given in them were carefully prepared, the instructors were carefully chosen, the members were prompt in their attendance, and earnest in securing to themselves what was taught. The school committees were cordial in their co-operation, and the citizens in the towns where the institutes were held were most hospitable in their entertainments.

One of the encouraging circumstances connected with the institutes just held is found in the fact, that the people, into whose hands the schools are committed, seem everywhere ready to co-operate with the agents of the State Board of Education in awakening a deeper interest in popular education. While the school committees and the teachers of the State have earnestly availed themselves of all the advantages which the institutes have offered to them, the people have contributed to their success, by manifesting an appreciation of their value, and by providing the means for their support.

WOMEN AS MEMBERS OF SCHOOL COMMITTEES.

By an act approved June 30, 1874, it was made legal for women to serve as members of school committees. Women had served in that capacity before the act was passed; but there had always been some doubt concerning the legality of their serving. From the returns made to the Board of Education in 1881, it appeared that ninety-eight women were serving upon school boards in seventy-two towns of the Commonwealth. Experience has proved that the women who are likely to be elected to that office make most efficient school officers.

In many cases the women have more leisure than the men, or they are more ready to work for a small material compensation. Oftentimes they are fresher from the schools, either as scholars or teachers, and feel a deeper interest in the education of children.

The number of persons employed as teachers in the public schools, during the last year, was 8,861; of this number, 7,727 were women. As it is the policy of the Commonwealth to commit seven-eighths of its public instruction into the hands of women, it would seem consistent for it to commit a share of its supervision of the instructors into the hands of women also.

Itis the uniform testimony of the agents of the Board who visit the different parts of the State, that, wherever women are found serving on school boards, there school affairs are in a progressive state.

NORMAL SCHOOLS.

The five normal schools supported by the State are reported to be in a prosperous condition. The last legislature made generous provision for new heating and ventilating apparatus at Salem, and for a new laboratory at Bridgewater. The apparatus has been put in, and the laboratory building erected. The one was much needed for comfort and health; and the other as a means for the study of physics and chemistry, and for practice preparatory to teaching these topics to others.

The demand for trained teachers is constantly increasing. As the people are obtaining more adequate and definite ideas of what it is to teach, and of the ends school exercises should attempt to secure, the more necessary does it appear to them that all teachers should have a thorough professional training for their work. Such training implies a careful study of the history and philosophy of education, an application of the knowledge obtained to the construction of a course of studies for the different grades of the public schools, a thorough knowledge of the subjects introduced into the course, and a knowledge of the method of teaching. It also implies the acquisition of that skill which enables a teacher to conduct his exercises in accordance with his philosophy.

There are some dangers connected with a professional study of methods of teaching. The normal student may be led by his teacher to pursue his study with sole reference to knowledge, leaving the acquisition of skill to future thought and practice. When, with such preparation, he comes to take up teaching as something to be done to children in a real school, he is sure to find that he has made a mistake by confining his efforts to forming mental images of unreal things.

Another danger is found in the tendency that an abstract study of methods has to create in the student's mind an inclination to bestow too much attention upon formalities. Both these dangers may be avoided by teaching and learning the fundamental truths upon which correct teaching is founded, and by a practical use of the truths under the training of a skilful master. A successful practice of teaching steadies the mind of the professional student in forming his theories. Experience has proved that the normal schools produce more satisfactory results when they teach the philosophy and the practice of teaching in connection with each other.

Training-schools seem, then, to be a necessary adjunct of the normal schools. It should be the constant aim of our professional schools to furnish their pupils with opportunities for obtaining experience as well as knowledge.

The number attending and the number graduating from the five State normal schools are as follows: —

	Number of Students.	Number of Students.
Bridgewater	174	52
Framingham	112	33
Salem	263	58
Westfield	120	25
Worcester	167	16*

Number of normal teachers employed in the Commonwealth, 2,236.

JOURNAL OF EDUCATION.

In these times of intense interest in all that pertains to the education of the young, teachers should avail themselves of every means of obtaining information, as well as knowledge.

The experiences of one individual may be communicated to another in such a manner as to prevent much of the loss caused by misdirected effort. Events that have had a bearing on the progress of the race are constantly repeating themselves as periods of time pass away. What has happened in educational affairs is no exception to the rule. Theories and practices which have been tried and condemned re-appear to be tried over again, and again to be rejected. No one is prepared to be a leader, or an intelligent follower even, in methods of teaching, who has not given thoughtful attention to the history of education. Nor can he expect to keep pace with the progress of the present age, unless, at the same time he is active in the discovery of new truth for himself, he is equally active in keeping himself informed of the new truths discovered by other minds.

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* Only one class.

To this end, the teachers of the Commonwealth, of all grades of schools, should be familiar with the best current educational literature.

The international magazine called "Education," "The New England Journal of Education," and "The Primary Teacher," all published under the direction of Dr. Thomas W. Bicknell of Boston, are some of the educational periodicals that should be read by every educator in the State. It would be a high compliment to pay to the profession in this Commonwealth, to say of its members, that they were all constant and interested readers of these valuable educational papers.

Agents of the Board.

Mr. George A. Walton and Mr. E. A. Hubbard, agents of the Board of Education, have done good service the past year, for the towns, in visiting the schools, and in conducting teachers' institutes. Mr. Walton made, during the summer, a thorough examination of a portion of the schools in Bristol County, and Mr. Hubbard did the same for Franklin County. A plan for the examination was drawn up, which called the attention of the agents to every thing affecting the character and condition of the schools. The mode of conducting the examination, and the results of it, may be found described in the Appendix of this Report. The first step towards a reform in school-work, or towards approving what already exists, is to examine for the facts. The agents, being practical teachers, are well fitted to conduct such an examination of the schools as will bring to light what is true of them.

As we come near to the internal life of our schools, through a competent examination, we find that while some of them appear well, others are far from satisfactory. The small towns are quite liable to make the great mistake of practising a wasteful economy in supporting their schools. They do not seem to bear in mind that a poor teacher, at any price, must, from the nature of the case, be more expensive than a good one; that a short school may, in the end, cost the town more than a long one; that irregular attendance of the pupils for the sake of the products of their labor at home will occasion more want than it will relieve; and that a failure to provide an intelligent and thorough supervision of the schools will result in a failure to secure the ends for which schools are established.

The results of the examinations already made of the schools of Norfolk, Bristol, and Franklin Counties, show an imperative demand for an addition to our school forces, which shall have for its province a systematic and constant direction of all school affairs.

The agents of the Board have aided in conducting, during the year, twenty-one institutes; they have answered constant calls to visit the towns for the purpose of aiding the school committee in their work of supervision, and the teachers in their work of instruction. There is a demand for more agents. Until the towns are organized so as to supply themselves with special school directors, the State should supply them, that the best and largest results which our system of schools is capable of producing may be secured.

District Supervision.

Sects. 44 and 45 of chap. 44 of the Public Laws give authority to any two or more towns to form a district, for the purpose of employing a superintendent of public schools therein, who shall perform in each town, the duties prescribed by law. Two districts have been organized under these provisions of the statutes; Waltham and Watertown forming one, and Canton and Milton the other. The first-named district is under the superintendency of Mr. John F. Prince; the second, of Mr. G. I. Aldrich. These union superintendents are doing a grand work for their districts, and are solving the problems relating to district supervision. If all the smaller towns of the Commonwealth could be united into convenient districts, and in this way supplied with adequate school superintendence, experience is proving that the conditions of good schools would be supplied.

The educational institutions of a State should be organized with reference to two ends: 1. The perfection of the individual; 2. A preparation of the individual to perform skilfully his duties as a citizen of the community in which he is to live The first is called general, the second technical, education. As the State exists for the protection and development of the people, it is clearly within its province to organize a system o schools with reference to the accomplishment of both these ends. As a fact the school system of this Commonwealth has reference to general education only, as an immediate end although it assumes that whatever matures the man will lay the foundation for that skill which fits him for his special place in life. The State should first provide schools for general and symmetrical culture. Into these schools all the children of the State should be sent until they have been trained together long enough to have cultivated in them that common intelligence and spirit which will enable them to live together a harmonious social life. This end should be accomplished by the time our pupils graduate from the high school. Technical education may sometimes begin before general education is completed; but the former should never be allowed to interfere with the latter. After general education is provided for, then, for the sake of the individual, and for the well-being of the State, special schools may be established for professional and industrial training. The children should all be trained to work, as well as to think.

Their education is inadequate and incomplete unless it has cultivated in them the power of providing for their own wants. Wealth in this country is not a permanent possession. The children of the rich may be, and often are, compelled to toil for the means of living. This is a sad misfortune only to those who have no inclination or ability to work.

If a State provides every needed kind of education for all, and requires all alike to obtain a general education for the perfection of the individual as a moral and intellectual being, and some technical training to fit the individual to provide for his own temporal wants, it will do much towards delivering itself from the burdens imposed by pauperism and crime, and lay the foundations for the highest civilization.

In the appendix to this report will be found a valuable contribution by Dr. J. D. Runkle, of the School of Technology, Boston, on the manual element in education; the annual reports of the agents of the Boards of Education, Mr. E. A. Hubbard and Mr. George A. Walton; the annual report of Prof. Walter Smith, State Director of Art Education; a paper by William Connell, jun., superintendent of the schools of Fall River, on a method of furnishing school supplies; and a report of the inspector of the high and normal schools of Ontario upon district supervision of schools.

JOHN W. DICKINSON.

BOSTON, 1882.

FINANCIAL STATEMENT.

FINANCIAL STATEMENT OF THE BOARD OF EDUCATION.

Appropriation for Support of Normal Schools.

Dr.							Cr.
1881.	Bridgewater Normal School.			1881.	Appropriation, chap. 17, Acts of 1881	$59,900 00	$59,900 00
	Salary of principal	$2,600 00					
	Salaries of assistants	10,032 00					
	Care of buildings, repairs, etc.	479 32					
	Fuel	340 00					
	Printing catalogue and programmes	89 41					
	Advertising	17 42					
	School of observation	243 85					
			$13,802 00				
	Framingham Normal School.						
	Salary of principal	$2,100 00					
	Salaries of assistants	6,879 02					
	Care of buildings, repairs, etc.	839 69					
	Fuel	524 36					
	Advertising	78 63					
	Printing	56 52					
	Books, binding, and stationery,	75 90					
	Sewerage	399 30					
	Sundries	21 08					
			10,974 50				
	Salem Normal School.						
	Salary of principal	$3,000 00					
	Salaries of assistants	9,444 97					
	Care of buildings, repairs, etc.	384 57					
	Fuel	402 75					
	Water-tax	49 50					
	Chemicals, etc.	134 51					
			13,416 30				

Westfield Normal School.						
Salary of principal . . .	$2,600 00					
Salaries of assistants . .	5,887 65					
Care of buildings, repairs, etc. .	789 95					
Fuel, gas, and water . .	524 18					
Advertising	13 00					
Printing	76 80					
Apparatus and stationery . .	39 75					
School of observation . .	400 99					
Sundries	17 65					
		10,349 97				
Worcester Normal School.						
Salary of principal . . .	$2,600 00					
Salaries of assistants . .	5,955 57					
Fuel	575 75					
Care of buildings, repairs, etc. .	970 24					
Books and stationery . .	153 64					
Printing	190 42					
Advertising	121 55					
Diplomas, postage, etc. . .	34 00					
Water, ice, etc. . . .	23 80					
Telephone, chemicals, etc. .	48 02					
		10,672 99				
		$59,215 76				
Balance of appropriation unexpended Jan. 1, 1882 . .		684 24				
		$59,900 00				$59,900 00

FINANCIAL STATEMENT OF THE BOARD OF EDUCATION — CONTINUED.

APPROPRIATION FOR NORMAL ART SCHOOL.

Dr.						Cr.
1881.	Salary of principal	$2,250 00		1881.	Appropriation	$17,000 00
	Salaries of assistants	8,946 52				
	Rent	3,500 00				
	Janitor	393 32				
	Taxes	817 82				
	Printing	104 15				
	Water-tax	46 19				
	Fuel and heating	670 25				
	Gas	250 00				
			$16,977 75			
	Balance unexpended		22 25			
			$17,000 00			$17,000 00

APPROPRIATION FOR AID TO NORMAL PUPILS.

1881. June 27,	Bridgewater School	$349 00		1881.	Appropriation	$4,000 00
	Framingham School	127 00				
	Salem School	762 00				
	Westfield School	556 00				
	Worcester School	206 00				
			$2,000 00			
Dec. 31,	Balance unexpended		2,000 00			
			$4,000 00			$4,000 00

APPROPRIATION FOR AGENTS OF THE BOARD.

1881.	George A. Walton, salary	$2,250 00		1881.	Appropriation		$5,400 00
	George A. Walton, expenses	390 52					
	Eli A. Hubbard, salary	2,250 00					
	Eli A. Hubbard, expenses	393 49					
			$5,285 01				
Dec. 31,	Balance unexpended		115 99				
			$5,400 00				$5,400 00

APPROPRIATION FOR TEACHERS' INSTITUTES.

1881.	Institute at North Adams	$83 75		1881.	Appropriation		$2,000 00
	" at Hubbardston	88 16					
	" at Northfield	112 02					
	" at Spencer	98 37					
	" at Pepperell	88 77					
	" at Plymouth	96 90					
	" at Merrimac	89 62					
	" at Brewster	117 85					
	" at Provincetown	126 95					
	" at Tyringham	121 29					
	" at Wilbraham	127 76					
	" at Williamsburg	121 42					
	" at Shelburne Falls	76 85					
	" at Foxborough	71 70					
	" at Fairhaven	110 93					
	Amount carried forward	$1,531 84			*Amount carried forward*		$2,000 00

FINANCIAL STATEMENT OF THE BOARD OF EDUCATION — CONCLUDED.

APPROPRIATION FOR TEACHERS' INSTITUTES — Concluded.

Dr. | | | | | | | Cr.

	Amount brought forward .	$1,531 84			*Amount brought forward* .	. . .	$2,000 00
1881.	Institute at Winchester . .	130 08		**1881.**			
	" at Saugus . . .	39 35					
	" at Whitinsville . .	39 75					
	" at Rockland . .	70 96					
	" at Clinton . . .	12 80					
	" at Brimfield . .	20 00					
	Printing	66 10					
			$1,910 88				
Dec. 31,	Balance unexpended. . .	. . . .	89 12				
			$2,000 00				$2,000 00

APPROPRIATION FOR INCIDENTAL EXPENSES OF BOARD.

1881.	Printing school registers . .	$639 71		**1881.**	Appropriation . . .	. . .	$1,200 00
	Postage, stamped envelopes, etc.	180 24					
	Printing	114 17					
	Messenger service . . .	95 00					
	Stationery	22 05					
	Copying and tabulating returns,	17 00					
	Binding	11 25					
	Expressage	6 95					
	Telegrams	7 68					
			$1,094 05				
Dec. 31,	Balance unexpended. . .	. . . .	105 95				
			$1,200 00				$1,200 00

Appropriation for Travelling Expenses of Members of the Board.

1881.				1881.		
Nov. 4,	Paid Charles B Rice . .	$22 30			Appropriation	$400 00
8,	" H. G. Knight . . .	16 35				
25,	" M. B. Whitney. . .	33 92				
30,	" William Rice . . .	26 25				
Dec. 13,	" A. A. Miner . . .	25 97				
28,	" E. B. Stoddard. . .	43 00				
			$167 79			
31,	Balance unexpended. . .	. . .	232 21			
			$400 00			$400 00

C. B. TILLINGHAST, *Treasurer.*

APPENDIXES.

A.

MANUAL ELEMENT IN EDUCATION.

BY

JOHN D. RUNKLE, LL.D.

MANUAL ELEMENT IN EDUCATION.

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y-first Annual Report of the Massachusetts Board
1 (1876–77) contains a paper with the above title;
comply with the wish of the honorable Board that
pare a second paper upon the same subject, embody-
litional experience as may have been gained in our
Iechanic Arts and other similar schools, together
formation I may have been able to gather since
the first paper. My chief aim in this paper will be
ich details as may be of service to corporations or
as hints or aids in the establishment of this kind
.

ly worth while in this connection to consider the
is element is to find its place in our educational
lividual opinion may for a time have some influence
the current of thought upon this subject; but in
ieeds of the public will control. There is already a
oression, if not conviction, that something of the kind
; and this conviction is most likely to find expression
pecial mechanic art schools, in centres where the
felt. If these schools shall demonstrate their value,
training schools for fitting students to enter upon
of industrial activity, but also as schools for fur-
ieeded mental discipline, then it seems reasonable
hat this element will become more general, and just
1 to the value in which it is held by the educated
g public. The methods of teaching the manual
become better settled through a larger experience;
vill not be the present lack of teachers properly
his kind of education.
ution in the method of teaching the physical and

natural sciences now practically completed in the laboratory method, or the method of investigation as it may properly be called, is recognized, not only as best for the acquisition of the required knowledge, but also as best for the discipline it imparts; and in the same way the laboratory method of teaching the mechanic arts will gradually take its place as a practical, and at the same time a disciplinary, element in education.

It is but a few years since the idea of introducing drawing into our schools as an element of general education seemed visionary; and yet to-day it is an accomplished fact in many parts of our own country, and has been for a much longer time in many countries abroad. Drawing is now regarded by many educators as an established factor in elementary education, and destined to work its way into all classes of public schools. It was only after it was plainly seen that there is a wide distinction to be made between drawing as an art and the drawing which pertains to a specific industry of which the former can be considered only in the light of the most general preparation, that the art began to be regarded as a possible fundamental factor in a common education. Until recently but little attention has been given to the same broad distinction, which underlies all the manual processes. The old idea of "trade-schools" — that is, schools for teaching the technical details of specific industries — has become so fixed in the public mind that some writers on the general subject, and some reports of school committees, have advocated the introduction of trades into the public schools. To all who entertain this idea I earnestly commend a paper on "Technical Training in American Schools," by E. E. White, LL.D., president of Purdue University, Indiana, issued by the Bureau of Education in Washington; and, while I entirely agree with the conclusions of the paper referred to as regards the introduction of trades into our public schools, no matter of what grade, I am further convinced on general grounds, and from some opportunity of observing the working of trade or special industrial schools, in contrast with general mechanic art schools, in which drawing and other mechanic arts enter as a proper factor, that trade-schools can only be justified, if at all, in a few exceptional cases depending upon the character of those to be taught, and in some few instances upon the character of the industry, such as practical farming, horticulture, pomology, or any other industry in which the manual ele-a very inconsiderable part of the special knowledge d does not involve those qualities of precision, con- , and quantitative relation, which would give it spe- nal value. To special schools of this class I shall er. The arts are few, and the trades many. It is of a fundamental general education to deal with ving to the student the task of finding out how his wledge applies in special cases. In short, he learns of his trade after he leaves the school, and enters osen specialty. But it is quite another thing to f his general education all those elements which industrial pursuits, and particularly if it can be seen oduction of these general elements is not only edu- asible, but desirable for the roundness and unity of education, and valuable, no matter what the future educated may be.

t follow, as some suppose, that, because the manual introduced into a course of study in proportion as an educational factor, therefore all who take nust necessarily become mechanics, any more than at, because all are taught the art of drawing, all re follow some pursuit in which this art enters as element. But it does follow that these mechanic laboratories would be used just as laboratories for of other arts or sciences are used, — first, to teach as a part of the general education, and, second, nced study of those who wish to become specialists cular direction; that is, for general and professional

asserted, and I think with truth, that American sinclined, for various reasons, to enter upon indus- s, and especially where a long shop apprenticeship My experience is that the objection is oftener on the parents, for the reason that the boy's general ust stop, and because, as a rule, it surrounds him with hich often prove fatal at this critical period of his lso sometimes thought that social considerations in- boy as well as his parents. But as soon as school teachers, and the public generally show their respect giving it consideration through educational prepara- e feeling will enter into the parents' or boy's choice

of a future career. He will simply consult his taste and apt
tudes, and the opportunities that offer, when he is ready to g
to work. The experience in our own School of Mechanic Ar
for the past five years fully sustains this position. Speci
technical schools confessedly for the children of the poor woul
inevitably become caste schools; but a general technical trainin
in some of the manual arts, including drawing, required of a
during the proper period, occupying only a few hours per wee
say from the age of twelve to sixteen, and before the studen
has sufficient mental maturity to work successfully in a scienc
laboratory, would have an entirely opposite effect, and be at th
same time an excellent preparation for industrial pursuits or fo
further study, no matter in what direction; for whatever sub
ject cultivates care, close observation, exactness, patience, an
method, must be a valuable training and preparation for all studie
and pursuits. But few persons, I apprehend, whose educatio
did not include drawing, have not had occasion to regret it, if o
no higher ground than their inability to use the pencil or draw
ing-pen for the simplest purposes with any effect or satisfactio

Before proceeding to an account of some schools in which th
Russian method of mechanic art education is used, I will sin
ply add that the Imperial Technical School of Moscow was th
first to show that it is best to teach an art before attempting t
apply it; that the mechanic arts can be taught to classe
through a graded series of examples by the usual laborator
methods which are used in teaching the sciences. The idea
involved in the system are, first, to entirely separate the *ar*
from the *trade*, — the *instruction*-shops from the *construction*
shops; second, to teach each art in its own shop; third, t
equip each shop with as many places and sets of tools, and thu
accommodate as many pupils as the teacher can instruct at th
same time; fourth, to design and graduate the series of sample
to be worked out in each shop on educational grounds; and
fifth, to adopt the proper tests for proficiency and progress.

It is indeed true, that, after the arts have been learned, th
next logical step in a full course is to teach their applications i
constructions, either in private works, or as is done in the Mos
cow school. In such a school, where the curriculum covers si
years, and the young engineer is needed in the service imme
diately upon graduation, and has not the opportunity, for an
reason, to learn the details of construction in private works
then the attaching of the works to the school may be justified

IMPERIAL TECHNICAL SCHOOL

IN MOSCOW, RUSSIA.

l is entitled to the leading place in any list of ; mechanic art education, on account of the fact e first to put this instruction upon a strictly scien- ational basis, — first, by separating the laboratories, ı-shops, from the manufacturing establishment; by working out a systematic scheme of instruction underlying arts.

THE ORGANIZATION OF THE SCHOOL.

ıool of Arts and Trades was founded in 1830; and ial decree dated June 1, 1868, this school was nd raised to the rank of the leading polytechnic rope. The course of instruction is six years, — ral studies, and three of higher special studies.

f the second three years embraces three sections of hanical engineers, technological engineers, and engineers. There is a fourth section, called *pra-* l exclusively of those who show exceptional apti- ctical work, but whose theoretical studies are pass them into the engineering sections. They ıller shop courses, which they complete in three

tted to the school the applicant must present pre- lence of qualification, by presenting one of the ificates: —

cate of the seventh class in a gymnasium, giving uction.

cate of a completed course in a real-school of the

icate of a course of study taken in a school of

ıg definitely admitted he must pass a test exami- following subjects: —

ınguage. — Composition on a theme chosen by the

s. — Arithmetic, algebra, elementary analysis, l plane trigonometry.

Physics. — A course of general physics.

Drawing. — Freehand and mechanical drawing.

Without the above-named certificates, the applicant must pass an examination embracing all the studies of a real-school of the first class.

The studies of the school combine theory and practice, followed in parallel courses. The extent of the scientific instruction is the same as in the leading polytechnic schools of Europe. The practical studies embrace freehand and mechanical drawing; the art of turning in wood and metals, joinery and pattern-making, fitting, locksmithing, forging, moulding, and casting. For the practical studies, special workshops have been established, furnished with all the pedagogical objects necessary for methodic instruction, which is given by special masters, who demonstrate to the pupils the fundamental principles of handwork in the mechanic arts. The school possesses in addition large manufacturing works, with all the adjuncts of a first-class establishment.

These works employ salaried workmen, and execute orders annually to the amount of a hundred and fifty to two hundred thousand francs. Still the main aim of the works is to furnish students an example of the conditions of industrial work in all its practical details.

II. THE ADMINISTRATION OF THE SCHOOL, ITS EMPLOYEES AND PUPILS.

Serge Barsheff, honorary curator, privy councillor.

Victor Della-Vos, director, actual councillor of state.

The corps of instruction consists of professors, masters, repeaters, numbering	46
Engineer-in-chief, assistants and foremen	11
Various employees	15
	72
Under officers and soldiers in the employ of the school	84
Workmen employed in the workshops, average number	100
	184
Free boarding students	100
Boarding students, paying twelve hundred francs per year,	200
Day students paying four hundred franes per year	282
	582

18

The pedagogical council consists of the following: —

Barsheff, *Honorary Curator.*
Della-Vos, *President.*
Bashenoff, *Secretary.*
Kazaouroff.
Letnikoff.
Arkipoff.
Orloff.
Aeschlimann.
Lebedeff.
Kossoff.
Porshesinsky.
Toukovsky.
Kolley.
Petroff.
Winogradoff.
Wladimirsky.
Zeloff.
Runkle.[1]

III. The Method of Instruction in the Mechanic Arts.

The following statement is extracted from the account given by Director Della-Vos, of the exhibit of the Moscow school at Philadelphia in 1876, and again substantially the same at the Paris Exposition in 1878: —

"In 1868 the school council considered it indispensable, in order to secure the systematical teaching of elementary practical work, as well as for the more convenient supervision of the pupils while practically employed, to separate entirely the school workshops from the mechanical works in which the orders from private individuals are executed, admitting pupils to the latter only when they have perfectly acquired the principles of practical labor.

"By the separation alone of the school workshops from the mechanical works, the principal aim was, however, far from being attained. It was found necessary to work out such a method of teaching the elementary principles of mechanical art as, firstly, should demand the least possible length of time for their acquirement; secondly, should increase the facility of the supervision of the gradationary employment of the pupils; thirdly, should impart to the study itself of practical work the character of a sound, systematical acquirement of knowledge; and fourthly, and lastly, as should facilitate the demonstration of the progress of every pupil at every stated time. Everybody is well aware that the successful study of any art whatsoever, freehand or linear drawing, music, singing, painting, etc., is only attainable when the first attempts at any of them are strictly subject to the laws of gradation and successiveness, when every student adheres to a definite method or school, surmounting, little by little and by certain degrees, the difficulties to be encountered.

"All those arts, which we have just named possess a method of study which has been well worked out and defined, because, since they have long constituted a part of the education of the well-instructed classes of people, they could not but become subject to scientific analysis, could not but become the objects of investigation, with a view of defining those conditions which might render the study of them as easy and regulated as possible.

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[1] Elected honorary member, Sept. 11, 1878.

ept the attempts made in France in the year 1867 by the cele-
arned mechanical engineer, A. Cler, to form a collection of
practical study of the principal methods of forging and weld-
teel, as well as the chief parts of joiners' work, and this with
nstrative aim, — no one, as far as we are aware, has hitherto
ngaged in the working-out of this question in its application
of hand labor in workshops. To the Imperial Technical
the initiative in the introduction of a systematical method of
rts of turning, carpentering, fitting, and forging.
owledge and experience in these specialties of the gentlemen
the management of the school workshops, and to their warm
the matter of practical education, we are indebted for the
the programme of systematical instruction in the mechanical
uction in the year 1868 into the workshops, and also for the
the necessary auxiliaries to study. In the year 1870, at the
manufactures at St. Petersburg, the school exhibited its
aching mechanical arts, and from that time they have been
all the technical schools of Russia.
(1878) we present our system of instruction, not as a project,
mplished fact, confirmed by the long experience of ten years
ts results."

IV. THE SCHOOL WORKSHOPS.

l-Turning. — Course I. For instruction in wood-
rteen samples or models. Course II. Patterns of
nachines, thirty models.
ry. — A course of twenty-five models for instruction
d pattern-making.
ing. — Models (seventy-nine) for teaching the ma-

l-Turning. — First course, thirty-eight samples or
cond course, twenty-one models.
ng. — Course I. Time for study, two hundred and
on twenty-eight models. Course II. Time for
hundred and forty hours on twenty-three models.
Time for study, two hundred and forty hours on
models. This shop is also fitted with benches, in-
nd apparatus for marking and lining the parts of
be worked.
ls for the Practical Study of the Construction of Cut-
ents. — I. Fourteen models of drills and counter-
sed to six times the ordinary size.
models of the cutting parts of files increased to
times the ordinary size.

III. Ten models of screw-cutting tools increased to six times the ordinary size.

The importance of these models for teaching the theory of these tools is obvious.

It will be noticed that the course in fitting contains seventy-five models and seven hundred and twenty hours. It is found that one student cannot work the whole series in the given time, and the following system is adopted for the engineering students: Each student works one-third of the models; but he is held responsible for the remaining two-thirds by studying the work of the two who are on his right and left. When either of the three receives instruction, the other two must attend. In this way all are held responsible for the manner of working and the method of solution of each piece.

The students in the section of *praticiens*, on the other hand, must each work out the entire series.

With this account of one of the most thoroughly equipped and comprehensive schools for mechanic art and mechanical engineering education in the world, I pass to the

ROYAL MECHANIC ART SCHOOL

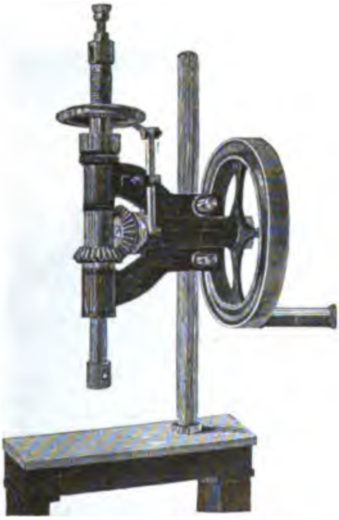
IN KOMOTAU, BOHEMIA.

This school opened Oct. 26, 1874, under the direction of Professor Theodore Reuter, who, after an inspection of the various methods of shop instruction in use in Europe, adopted that of the Moscow school, giving credit to Director Della-Vos. No manufacturing works are connected with the school. Its simple aim is to educate skilled mechanics in the best and quickest way, and with such theoretical knowledge as the mechanic needs in addition to manual skill. The front portion of the school-building, only half of which is shown in the cut, is used for the theoretical instruction, and the three portions extending at right angles in the rear contain the shops. These were at first equipped for forty-eight students; but additional facilities have been furnished from time to time to meet the increasing number of students. The minimum age for admission is fourteen years; but all ages up to twenty-six years are found in the school. The course is two years, and the student is occupied nine hours per day, — from eight to twelve M. in the ıwing rooms, and from one to six P.M. in the shops. ·k holds the first consideration, as the quality of he test by which the public is to determine the ɔractical instruction. The theoretical subjects and of teaching them are determined solely by the ɔds as a skilled mechanic. The following is the dy: —

s Course of Shop-Work.— 1. Carpentry and joinery, per week for sixteen weeks. 2. Wood-turning, ɔer week for twelve weeks. 3. Hand-tool work in hours per week for twelve weeks. In this course ɔrms in locksmithery are used as models, preparairse in application during the second year. The ges his shop-work every four weeks.

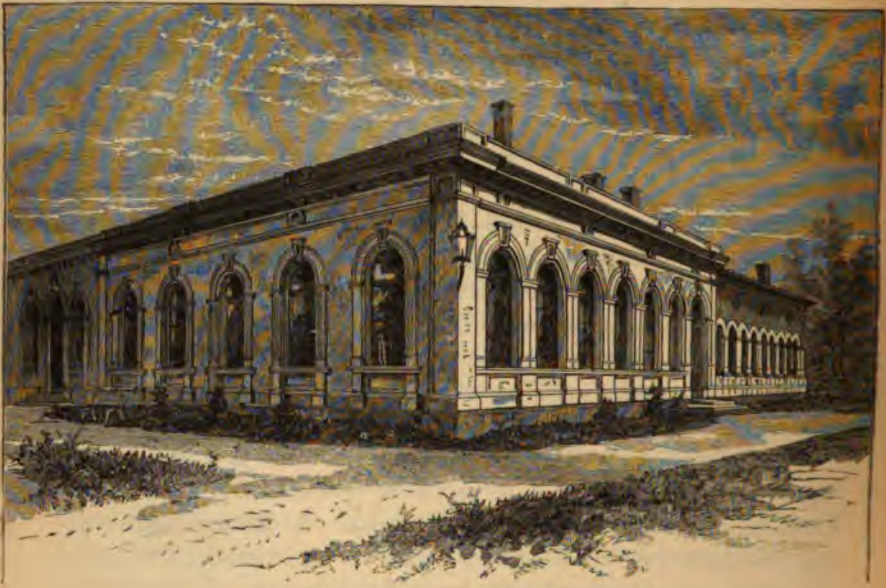
's Course of Theoretical Studies.— 1. Linear drawelements of projections, ten hours per week. 2. ıwing, four hours per week. 3. Round-hand writper week, winter term. 4. Arithmetic, five hours vinter, and two hours in summer. 5. Geometry, per week in summer. 6. Physics, one hour per lachine theory, two hours per week. 8. Simple and business-papers. se subjects only the ıents are taught in a ɔrough way.

ır's Course of Shop- 'orging, thirty hours eight weeks, two d forty hours. 2. ɔrk, thirty hours per ;ht weeks. 3. Iron-;y hours per week for . 4. Locksmithery, ɔurse of thirty hours twelve weeks.

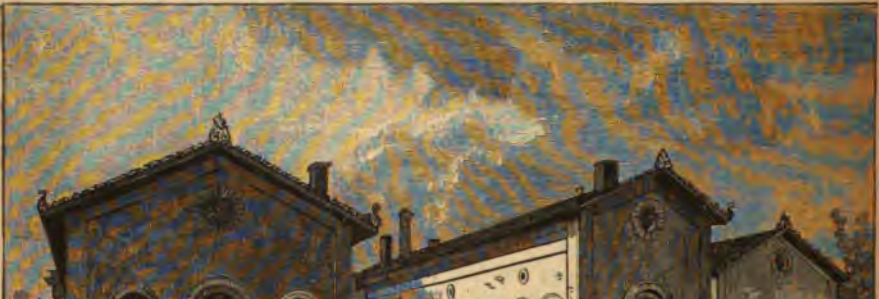


DRILLING-MACHINE.

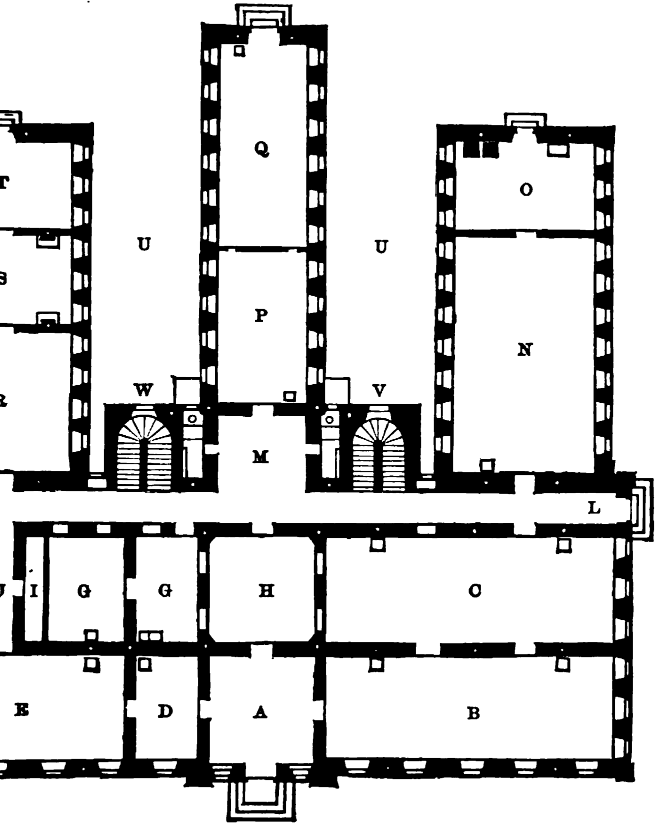
he prescribed work se, each industrious make one or more chines. This little ine is not given as a fair specimen, but because I have a photograph of it. In this extra work he



KOMOTAU SCHOOL-BUILDING. — FRONT.



KOMOTAU SCHOOL-BUILDING. — REAR.



Scale 1:400 (5 mm = 2 M).

LAN OF THE KOMOTAU SCHOOL-BUILDING.

ance Hall.
ving-Room.
el-Room.
ctor's Room.
ure-Room.
erence and Recitation Room.
tor's Quarters.
ne-Room; Glass Roof.
-Room.
idors.
ents' Entrance.
ents' Exit.

M. Corridor Hall; Glass Roof.
N. Model Joinery and Pattern-Making.
O. Iron Foundery.
P. Model Wood-Turning.
Q. Iron-Turning.
R. Machine Locksmithery.
S. Forging Shop.
T. Model Locksmithery.
U U. Paved Courts.
V. Coal Magazine.
W. Iron Magazine.

For this Plan I am indebted to Director Röver.

has only the direction, suggestions, and advice of his teacher in order to cultivate as early as possible his independence design and execution.

Second Year's Course of Theoretical Studies.—1. Machin drawing, ten hours per week. 2. Freehand drawing, four hou per week. 3. Arithmetic, two hours per week. 4. Stereotom one hour per week. 5. Applications of arithmetic and geomet to simple machine computations, three hours per week. 6. Th manipulation and manufacture of metals, one hour per wee 7. Machine theory, two hours per week. 8. Book-keeping an business-papers.

In all the shops the instruction is given through a progressi series of models, all of which each student must work; nor ca he take a new one till the previous one is satisfactorily mad Any student who, through greater industry or capacity, finish the course in advance of the class, can choose his work, wit the sanction of his teacher, till the course is completed; but h cannot enter a new shop in advance of his class.

As all the materials are furnished by the school, it claims a the work. Each student has a case, with his name attached, i which his work is placed. All pieces of marked excellence a put into the collection for general and annual exhibitions in th name of the student. All the work is kept for two years, an then sold to schools and individuals for the purposes of instru tion. There is a small but growing class of men abroad calle *Technikers.* They do not claim to be, or rank with, engineer but are simply skilled and well-educated mechanics; and the men are finding situations as teachers in such schools as that a Komotau. They are qualified to give instruction in both th theoretical and practical departments, and are likely to be muc better teachers of shop-work than the mechanic who has onl his shop experience. While there is not an excess of such me abroad, here they are difficult to find.

This school was established two years before our Mechan Art School at the Institute of Technology, but I did not kno of it till near the close of our first year. The fact that bot schools had independently adopted the same method of sho instruction, drawn from the same source, made my two day visit in Komotau of peculiar interest. At the time of my vis the school was in charge of Professor Röver, from whom received the kindest attention, Professor Reuter having bee hn in Prussia, to found another school. Through the Komotau school I had the pleasure of meet- Hauff of the Polytechnic School of Vienna, who of a commission having in charge the matter of dustrial education in Austria. It is proposed to al schools in all industrial centres throughout the precisely the same aims as that at Komotau, and n the same principles and by the same methods, adapted to the industry of the particular local- tical studies conforming to the needs of the par- y. I was informed that the aim and end of these instruction, and only when the manufacture of can be taught in an applied course more success- l or purely educational models, will it be done; having already been settled that these schools nse to become or to be regarded as commercial establishments. The department of commerce lished a practical technical school at Steyr, with teach all the processes in the working of iron uch as forging, turning, chipping, filing, boring, hing, burnishing, soldering, tempering, annealing, ng, nickeling, engraving, etching, coloring, stain- ding applications to wood, bone, horn, and ivory. with the programme of the school we find the arks:—

yond question, that the required education, together with g to the several trades, can only be gained in special schools fitted up in the proper way. These workshops also make it numbers to fit themselves for the various technical trades, o travel the unpleasant path which leads through the years , and at the same time to acquire the proper education. here relate to the manufacture of small articles in iron and motau and Klagenfurt pay particular attention to the edu- n and workmen in machine manufacturing, and those at aking.

last-named school has proved that it is possible in a few almost dead industry, and make workmen capable of pay- despairing mechanics, so the school at Komotau has shown proofs of usefulness, and the ends there gained have been home and abroad. One proof is, that, in spite of the hard ils from Komotau have found occupation in different manu- hments; and another, that England, a country unsurpassed res of iron and steel, has already sent some students to the

SCHOOL OF MECHANIC ARTS,

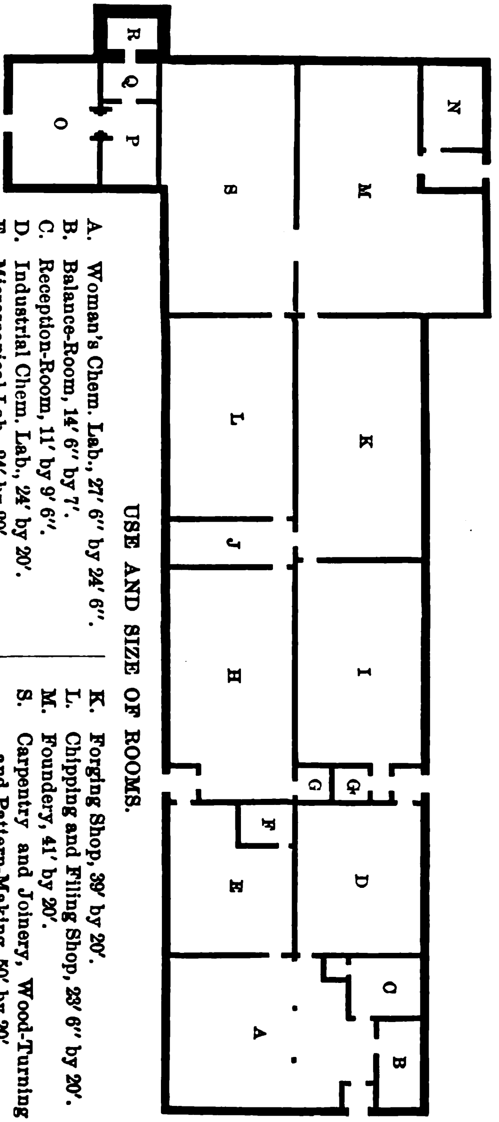
INSTITUTE OF TECHNOLOGY, BOSTON, MASS.

This school was founded by a vote of the corporation of t Institute, dated Aug. 17, 1876. Since Oct. 1, 1878, it has be in charge of a committee of the faculty, Professor John I Ordway, chairman, upon whom has devolved the main dire tion of the school. While adhering to the spirit and method instruction, the aim has been to make the work in all depa ments as practical as possible, by selecting useful forms, if equal good, to teach the particular manipulation. The accompanyi pages of cuts, showing series of samples used in each shop, a given as a general illustration, and not as the only, or eve necessarily the best, series, for teaching the manipulations in ea case. Every qualified teacher will naturally design his ow course, and will also modify it from time to time as experien suggests. There is obviously the same freedom here as in t teaching of other subjects. The mechanic art courses are follows: In *wood* — I. Carpentry and joinery; II. Wood-tur ing; III. Pattern-making. In *iron* — I. Vise-work; II. Fo ging; III. Foundery-work; IV. Machine-tool work.

While these shops are used for the practical instruction our students in mechanical engineering, and for such other pr fessional students of the Institute as desire it, they are mo largely used by students in the school of mechanic arts. Th school, in which special prominence is given to *manual* educ tion, has been established for those who wish to enter up industrial pursuits, rather than to become scientific enginee It is designed to afford such students as have completed t ordinary grammar-school course an opportunity to continue t elementary scientific and literary studies, together with mecha ical and freehand drawing, while receiving theoretical a practical instruction in these various arts, including the natu and economic value of the materials with which they de Nine hours per week — three lessons of three hours each — the students' time are devoted to shop-work, and the balance drawing and other studies; only one shop course, except in t case of special shop students, being carried on at a time.

It may be well, now, briefly to indicate the steps necessary fitting up a shop, and in working out the course of

.—1. Settle upon the tools and appliances to be



NEW TEMPORARY BUILDING FOR SHOP-WORK AND CHEMISTRY.

USE AND SIZE OF ROOMS.

A. Woman's Chem. Lab., 27′ 6″ by 24′ 6″.
B. Balance-Room, 14′ 6″ by 7′.
C. Reception-Room, 11′ by 9′ 6″.
D. Industrial Chem. Lab., 24′ by 20′.
E. Microscopical Lab., 24′ by 20′.
F. Dark Room, Spectroscope.
G. G. Tool and Stock Rooms, 6′ by 6′.

K. Forging Shop, 39′ by 20′.
L. Chipping and Filing Shop, 23′ 6″ by 20′.
M. Foundery, 41′ by 20′.
S. Carpentry and Joinery, Wood-Turning and Pattern-Making, 50′ by 20′.
N. Wash-Room, 13′ 6″ by 9′ 6″.
O. Organic Chem. Lab., 19′ by 14′.

the course. 2. Decide how many students can be section. 3. Design the fitting-up of the shop, giv- udent the proper space and facilities, and so arrange that each student, in each section, can lock up and control his own tools and instruments, which are not to be used in common.

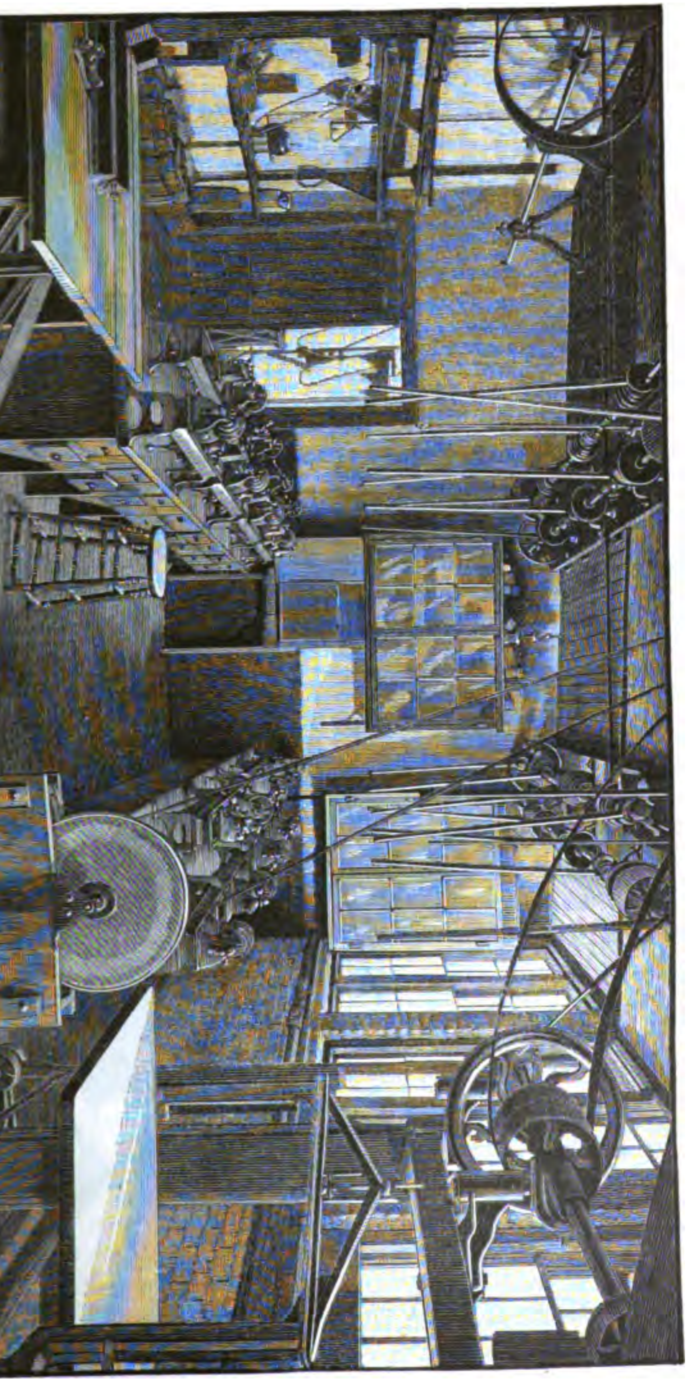
The Course of Study.—1. Design a series of progressive lessons, especially adapted to teach the use of the set of tools and appliances pertaining to each course. 2. Let the master work each lesson, or sample, that he may settle clearly in his own mind the best method of solution, with a statement of the reasons therefor. 3. A system of inspection upon which the quality of the work can be based, and each student given his proper percentage, and which shall also be the means of educating the judgment of the student, that it may keep pace with his skill of hand to execute.

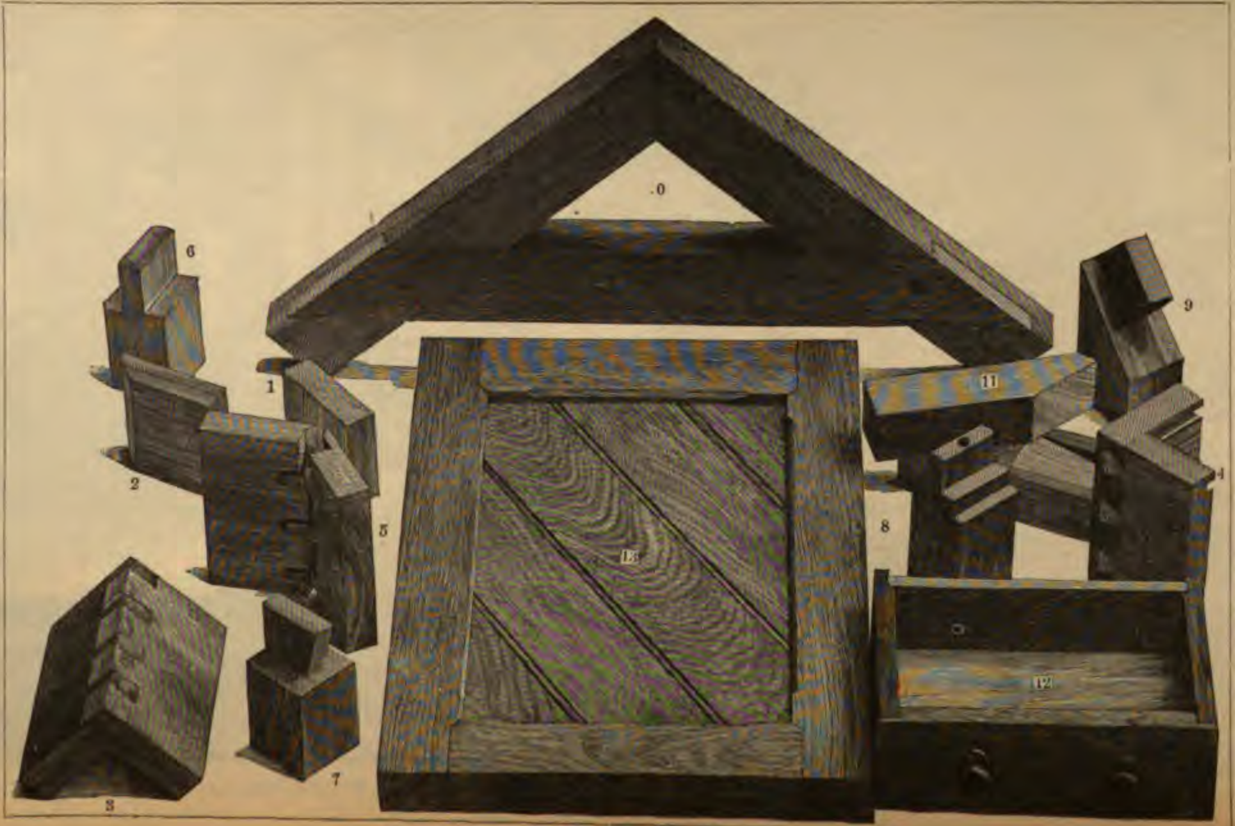
We find, then, that in this practical part of the problem there are three distinct educational steps. First, the best method of solution. Second, skill of hand to execute the work. Third, the capacity to judge of the quality of the work.

The theoretical studies are arithmetic, algebra, geometry, English, physics, and drawing. The shops are arranged for teaching sixteen in a section, except that for forging, which contains only eight forges, on account of the smallness of the room. The deficiency has been remedied as far as possible by enlarging the foundery, and using portable forges.

All our shops are entirely too small for the work we are endeavoring to do in them, and the present temporary building must soon be replaced by a larger and better adapted one, if the purposes of the school are ever fully realized.

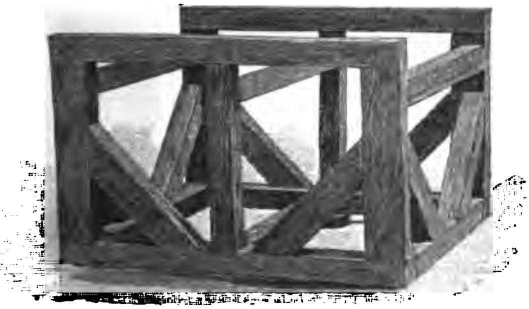
The Carpentry, Joinery, Wood-Turning and Pattern Shop.—This shop is 50′ by 20′, one end containing the carpentry and joinery benches, and the other the wood-turning lathes shown in the cut. The lathes are placed four on each side of two benches, and under each lathe are four drawers to hold the tools of the four sections. The carpentry and joinery benches at the other end of the room are similarly arranged. In the middle of the room, the cut shows the saws for cutting up the lumber to the dimensions needed in the courses of instruction. The first instruction in carpentry and joinery is the use of the saw and plane in working wood to given dimensions, and then a series of elements follow in order. (See cut.) No. 1, a square joint; 2, a mitre joint; 3, a dovetail joint; 4, a blind dovetail; 5, a mitre dovetail; 6, a common tenon; 7, a key tenon; 8, a tusk





COURSE IN CARPENTRY AND JOINERY.

brace tenon; 10, a pair of rafters with collar-a truss tenon; 12, a drawer; 13, a panel. In addi-above each student makes a small frame, to apply he elements of the previous lessons. A sample is cut.

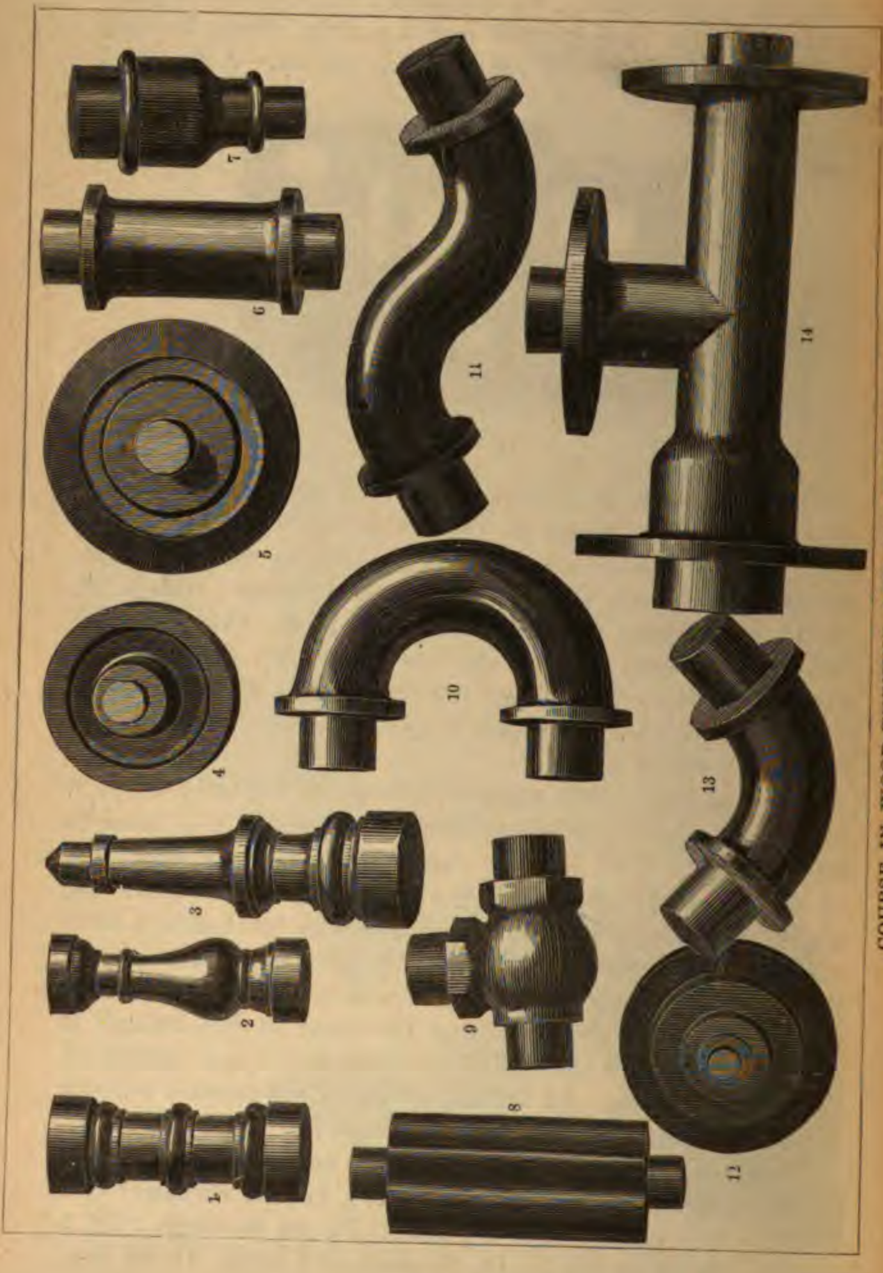


SMALL FRAME.

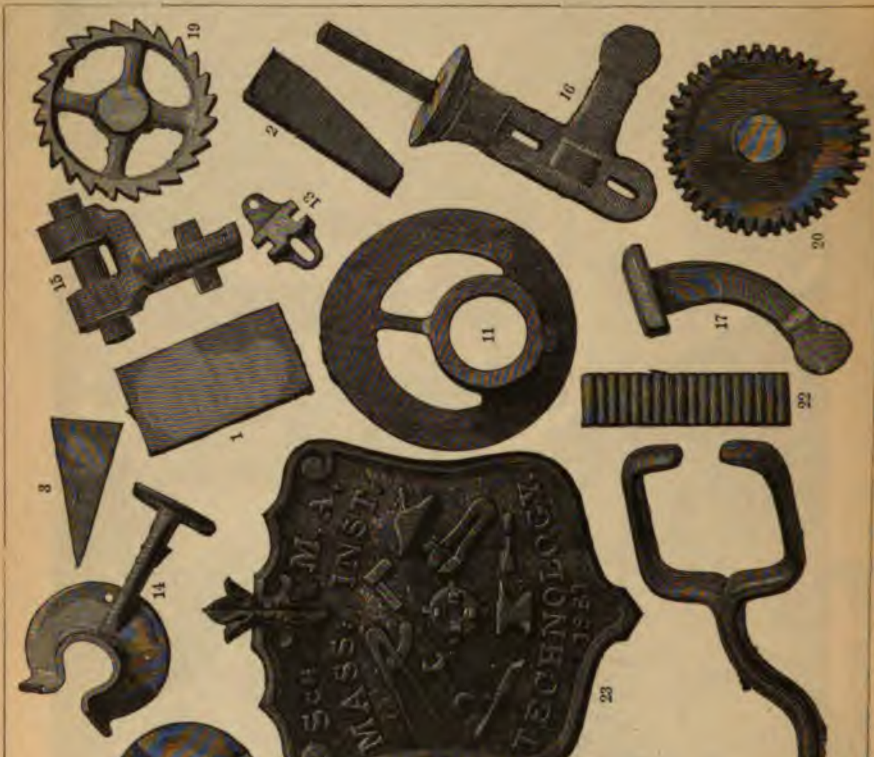
ruction in turning (see cut) and circular-section king is given in the following series of models. nd 3 represent a series of manipulations in simple , 5, and 12, pulleys; 9, a globe-valve; 6, 7, 8, 10, patterns for various forms of pipe. Corresponding ns form part of the course. Bench patterns, and lathe combined, are not included for want of space. ruction in this shop is given by Mr. George Smith, Mr. Z. Nason.

ndery. — The cut representing the foundery shows a sixteen moulding benches, combined with troughs the sand, with the cupola furnace at the other end m. Over the furnace is seen the Sturtevant fan, usts the heat and dust from the blacksmith's shop he furnace connects with a flue which passes out of hence underground, into a chimney in the rear end n Institute building. The blast for the furnace is the pipe shown over the door, in the rear right-hand he room. An average charge of the furnace is about d pounds.

Course. — Nos. 1, 2, 3, 4, 5, are pieces used in the ling and chipping; 6 and 7, curved castings; 8, a a pulley; 10, a pulley; 11, an eccentric; 12, a 14, 15, 16, 17, 18, 21, parts of a loom: 19, 20, cog-, a rack; 23, a shield.



COURSE IN WOOD-TURNING AND PATTERN-MAKING.



COURSE IN FOUNDERY-WORK.

ng Shop. — This shop is fitted with eight forges. ınt pressure blower, which furnishes the blast for placed in the engine-room. The hoods over the nnected with a sixteen-inch pipe, which runs longiır the ceiling of the shop, and enters a No. 4 Sturıst blower in the foundery. This exhaust blower ɪmoke and dust, and much of the heat. This shop and fitted by Mr. B. F. Sturtevant of Boston at ɪnse. The school is also indebted to him for other stance.

ine-Tool Shop. — This shop contains sixteen engine ′ bed, four speed lathes, and a Brainard milling 'he engine lathes were made for the school by the ıchine Company of Fitchburg, Mass., from new l furnished at a greatly reduced cost, and have l respects first-class tools. Under each lathe is a ıwers to hold the tools belonging to the students bench under the window holds the requisite numɪ. The shop needs a variety of additional tools, ɔt furnished for want of room.

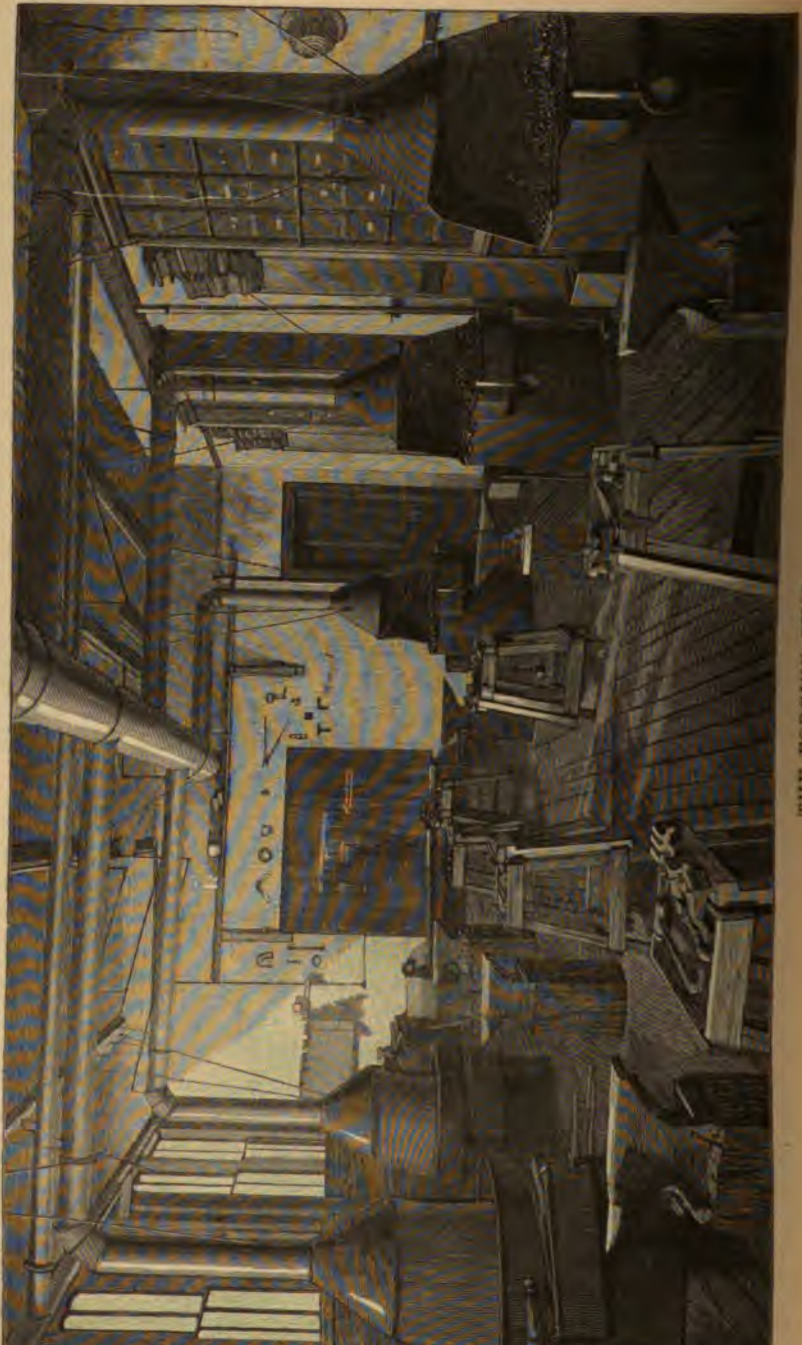
ɔing, Filing, and Fitting Shop. — This shop contains ı sixteen vises and other needful appliances, with a lstone, etc., for which there is no room in the maop.

ıction in forging, vise-work, and machine-tool work of Mr. Thomas Foley, a thorough and skilful mehas served his seven years' apprenticeship, and has , a long and varied experience in his profession. ar comprehension of the problem of mechanic art ınd has, during the past five years, shown equal ı teacher. He recognizes that the student should ɪthing besides simple manual training in this departcation. A want of method, a want of appreciation to be gained on the part of the teacher, are both ɔest results. Mr. A. W. Sanborn, a graduate of the . Foley's assistant.

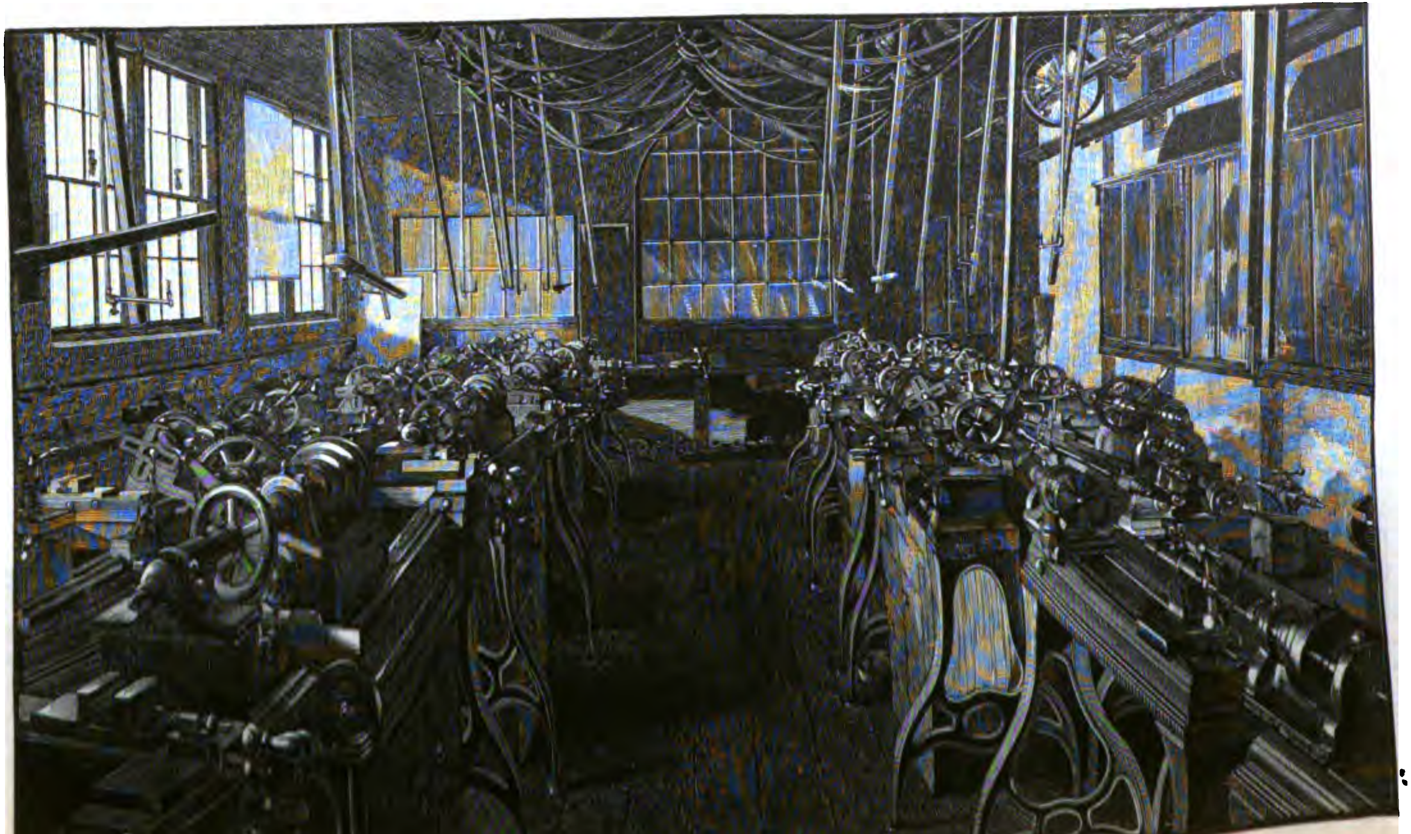
ıe great pleasure to submit Mr. Foley's report, as

D. Runkle.

The system of apprenticeship of the present day, as a genınts to very little for the apprentice, considering the length of



THE FORGING SHOP.



time he must devote to the learning of his trade. He is kept upon su work as will most profit his employer, who thus protects himself. If t apprentice should be thoroughly taught all branches in the shortest time, would be likely to leave as soon as he could do better, letting his employ suffer the loss of time devoted to his instruction.

Now, it appears like throwing away two or three years of one's life attain a knowledge of any business that can be acquired in the short spa of twelve or thirteen days by a proper course of instruction. The dexteri that comes from practice can be reached as quickly after the twelve day instruction as after the two or more years spent as an apprentice under th adverse circumstances spoken of above. The plan here is to give to the st dent the fundamental principles in such lessons as will teach them mo clearly, and give practice enough in the shortest time to acquire a know edge of the different kinds of tools and various ways of using them. Fo instance, if a man can make a small article in iron, steel, or any other mat rial, perfectly (by such methods), he can make it of larger proportions wit the additional time and help required for such an undertaking. The sam in degrees of heat required for fusing or welding metals: if he can do it we in a lesser degree, he can certainly do so in a greater with the addition facilities.

After nearly five years' experience in the workshops in my charge, wit the valuable suggestions of the professors so much interested in the succes of the school, we find the best results in the time allowed, accomplished b the method now in use in the Institute workshops; viz., three lessons pe week of three hours each.

The time is just sufficient to create a vigorous interest without tiring: also leaves a more lasting impression than by taxing the physical powers fo a longer period. We have tried four hours a day, and find that a large amount of work, and of better quality, can be produced in the three-hou lessons.

In order to give each student the proper credit, and to show him the mo important points in each piece, the following method has been adopted fo inspection: Take case of bending. The four shapes to the right of 4 on th cut of forgings represent bending of flat and round iron; and the points be noted by the student are rated as follows :—

Dimensions	25
Form	70
Finish	5
	100

The most important point in this lesson is the form; the next the dime sions, and the last the finish. Through all the iron-working and oth metals in each shop, the same method is carried out. Every piece is made certain dimensions laid down upon the drawing. The object of working dimensions is to establish the necessity of correctness in measurement, an is followed throughout the course as a very essential point. The most of th exercises convey the idea of the necessity of straight lines in drawing lengthening iron, and graceful curves in bending.

-forger's art is comprised of the following terms and move-

ie management of the fire, and the degrees of heat necessary ticular metal forgeable.

Drawing *down*, or reducing the cross-section.

ending without materially changing the cross-section.

Jpsetting, or shortening the piece, and increasing its cross-sec-

igoting, or building up for welding, and welding the same; and iout fagoting or building up, understood generally as welding.

plitting. } The terms are so well understood that they need no
Punching. } explanation.

Chamfering, means hammering the edges down to give the piece irance.

nnealing steel.

ardening and tempering steel.

Case-hardening iron.

g brass, copper, etc., is often done by the forger, but does not under this head, although it is taught in this department.

ed forms of construction are simply the adaptation of the in- irse to such variation.

with the main tools — the planer, lathe, milling-machine, upright used in the machine course, the uses of each auxiliary tool are explained, and sufficient practice given in short lessons to place on a par, so far as the general knowledge goes, with the three- ntice.

iods adopted here are as follows: A sketch of the piece is laid orking dimensions on the blackboard for reference during the The article is then forged in detail by the instructor before the g their attention to each particular point necessary to its success- n at the same time. There are also duplicate pieces distributed shop to refresh the memory and assist the eye in forming. Each ited according to the quantity and quality of his work, which is ie rules laid down for inspection.

Explanation of the Course in Iron and Steel Forging, ing and Tempering Steel, and Case-hardening Iron.

lesson comprises the building and keeping forge fires in proper pon which depends in a *great* measure the success of forging. s in the degrees of heat necessary for the successful working of n their varied forms. The other lessons will be explained briefly ally in order corresponding with the number in the cut to be e left of each piece, or in the centre of the piece when it can be advantage.

Cutting Cold Iron, Bevel-Forging, Drawing, Forming, and Bending. l-forging is shown in the first form of the piece, but destroyed s final form.

Drawing and Forming. — Drawing is reducing the cross-section.

Forming will be better understood by the following description of the entire piece: Drawing from a round piece to form a square, then to form a portion of it octagonal, and lastly to a tapered round point. In this figure welding is introduced to show the necessity of so doing when using common iron (iron most generally used). The result of drawing such material without using a welding heat would be the separation of its parts lengthwise. In this piece the necessity of maintaining straight lines is impressed, and expected to be carried out in future lessons.

No. 4. *Bending* does not change the cross-section as much as drawing. In some cases it is hardly perceptible. This exercise consists of bending round and flat iron in a circular form. The two staples in the centre of the rings take in drawing with the bending, and are made in a useful form only because it can be done as well so without taking up extra time that might be put to a more profitable use.

Let me say here, that all through the course, whenever the principles can be introduced in a useful form without occupying more time than would be spent in a plain form, it is invariably carried out.

No. 5. *Welding, Fagot-Welding.* — This lesson is intended to show how iron can be increased in size by joining a number of pieces together by welding where it could not be done so easily or profitably by upsetting.

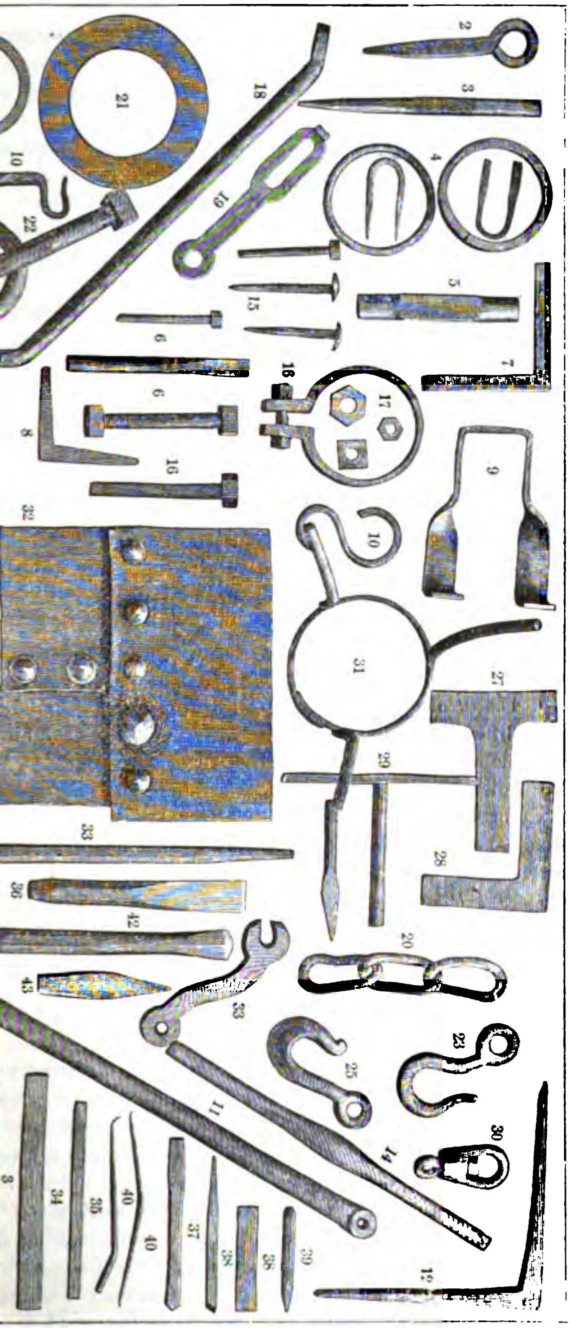
No. 6. *Upsetting, and Bolt-Making by Upsetting.* — Upsetting shortens the piece, and increases its cross-section. The first piece to the right of the figure 6 shows a piece of round iron upset at one end enough to make a square from the round of the same dimensions as the diameter of the round, and intended as preparatory to the working of the other figure to the right, — a bolt upset in the same manner to form the square head, enough being upset at the end of the piece to form the head in a heading-tool.

No. 7. *Upsetting while Bending and Forming.* — This piece, being a square made of square iron with well-defined corners inside and out, is pretty difficult to make by this method if great care is not taken in handling it. This method saves considerable time where it can be used. It is not the strongest form, and only used where neatness in appearance or nice fitting is required.

No. 8. *Upsetting before Bending and Forming.* — This piece being square only on the outside, while the inside corner is round, it is a stronger form, but for purposes differing from fig. 7; viz., a knee, angle-iron, or bracket, as it is termed. Sometimes it is intended to show the different methods of doing work similar in construction.

No. 9. *Bending and Twisting.* — Bending in this case (the piece being a floor-timber hanger) is done without upsetting, leaving it strong enough for its purpose by making the inside and outside of the turn rounding. The twisting is simply to bring the other end in position to receive the timber.

No. 10. *Drawing, Bending, and Twisting.* — The object in drawing the ends is to alter the form from square to round, and also make it lighter where the hook and eye are turned, the bending of which has already been described. The twist in the centre of the square part is intended to show how this part of ornamental work is done. The other figure No. 10, an S hook, as it is termed, is a part of this lesson, and is intended to accustom the student to the graceful curving of iron.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No. 11. *Upsetting, Welding, Forming, and Punching.* — A tool for m
ing the heads of bolts, rivets, etc., known as a heading-tool.

No. 12. *Upsetting, Drawing, Bending, Chamfering, and Punching.* — T
piece, a bracket, combines the movements designated by the heading of
lesson. We find, in such combinations throughout the course, that it ke
the student well up in memory (and practice with the hands) of the p
lessons.

No. 13. *Bending, Drawing, Welding, and Forming.* — In this combi
tion the ring is made in three pieces, involving the above movements. T
object of this piece is to show how large bands of this form can be ma
with economy of time and material.

No. 14. *Butt or Jump Weld.* — This piece is intended to show how
swell can be made in the centre, or any other point, of the bar; also to sh
the treatment such welds should receive after welding, in order to prese
the strength of the weld.

No. 15. *Drawing and Upsetting in Heading-Tool.* — Rivets and clout
dog nails are what has been made in the tool No. 11. The main feature
the lesson is making the required shaped head, and keeping the body of t
piece in the centre of the head.

No. 16. *Upsetting and Drawing.* — One of the hexagonal-headed bo
was made by upsetting the bolt to form the head. The other, a small o
No. 16, will be found forming a part of No. 13, and was made by drawi
the body of the piece, and forming the head out of the stock from which t
body was drawn. The object of this lesson is to give the necessary practi
required to form the sides of the head uniform.

No. 17. *Punching. Making Square and Hexagonal Nuts.* — In this l
son the different methods of making nuts by the use of the hammer alo
and by the use of the hexagonal tool, are carried out.

No. 18. *Upsetting, Punching, Welding, and Fitting.* — This piece, a so
eye-stay or brace, as it is termed, besides the combination used in form
lessons, takes in fitting or setting the piece to a given angle as a suppo
Countersinking for screw-heads is also included.

No. 19. *Punching, Splitting, Forming, and Welding.* — This form of ha
is only introduced to give practice in splitting, along with the other process

No. 20. *Bending, Scarfing, and Welding Round Iron.* — The links
chain that form the lesson introduce a different scarf for welding from t
ordinary one of straight round iron. The twisting of the chain is a
brought in here.

No. 21. *Bending and Welding Flat and Edgewise.* — The two pie
numbered as above are close together on the plate, and need but lit
explanation on account of the correctness of their delineation, the differen
in the shape of scarfing before welding being the only excuse for maki
this remark as the point of the lesson.

No. 22. *Drawing, Bending, and Welding.* — A piece well known as
eye-bolt or ring-bolt, the manner of shaping and scarfing being the partic
lar points in the piece. A nut at the end of the bolt, with a screw cut up
it, will be described at the close of the lessons. This figure will be fou
upon the cut in conjunction with No. 28, a ring welded after being pass
through the eye making the piece complete.

ving, Welding, and Forming. — The main point in this piece of the eye by turning and welding it in such a manner as r as a solid piece of metal punched and worked out. It is a general thing, for work to be finished. The figure itself rope-hook.

wing, Punching, Upsetting, Welding, and Riveting. — In piece it is considered necessary that the student should be one of the most essential tools used in the art of forging; n's tongs; and, as it combines nearly all that has been gone r lessons, it naturally brings to mind what might be lost in it such a combination of them.

ching, Drawing, and Forming — The piece here represented he formation of the eye (by punching) and the hook part give it greater strength) from No. 23. This hook is used ain-hook.

rf-Welding, Flat Iron. (Common Iron) — This piece, an d weld, has to be scarfed in a different manner from any his course, and on this account it is brought in here, with int, squaring the piece.

rf-Welding, Flat Iron. (Norway Iron.) — A different form st number. It is what is termed a T weld, and the peculi- is one of the most essential points; another, the forming ore taking a second welding-heat, in order to give the piece f being solid. In this lesson we use the best of iron, and ron, or what is in common use: by this means the student the difference of treatment in welding the two qualities of

ding and Welding. — The figure with the number above ut is a ring welded after being passed through the eye of . 22, making the two as one complete piece, a ring-bolt. lar feature in this piece is the forming of the scarf in such nake the welding of it easy.

o Weld, Round upon Flat. — The round and flat iron welded ly shows by their scarfing how any other shaped iron can be in the same way. In this piece the scarfs differ from the terially. The varied uses to which the piece can be put can ed.

wing, Forming, Punching, and Welding. — This combina- play some difficult movements in order to produce a sound ece is termed. One of the pieces forged in lesson No. 15 ng portion of the piece when complete.

ding and Riveting. — The tripod with this number in the it takes in bending, is intended more particularly to show d iron is done. By the addition of bending, it leaves the form.

rfing, Riveting, and Calking Boiler-Plate. — The object of how how iron plates can be put together, and made steam- the rivets are riveted with the use of a heading-tool, and in the ordinary way with hammers. The piece is after- nake it tight, with a tool termed a calking-tool.

No. 33. *Steel-Forging.* —Cast steel of different man
ufactures is introduced throughout the course of steel-forging. Spring stee
too, is taken in, and the many ways of determining the quality and meth
of treating it in its various changes.

The first piece, No. 33, is an S wrench,—to be finished in the filin
course, where the reasons for so doing are explained. In forging this piec
the degree of heat necessary for the successful working of steel is pract
cally illustrated by the instructor, and consequently very few failures occu
Annealing, or softening, hardening, and tempering, comes in at the close c
the steel lessons.

No. 34. *Welding Steel and Iron together, and Steel and Steel together.* –
A flat piece of iron and steel are welded together, after the very essenti
preparation in scarfing, and then the steel and steel are welded, making th
piece complete in six inches in length.

No. 35. *Forked or Split Weld.* (*Steel and Iron.*)—A form of weldin
in more general use than any other; and, wherever it can be used with con
venience, insures economy in time and strength in the piece, being sup
ported on each side by the iron, making, as a general thing, a better weld c
more substantial piece.

No. 36. *Tapers and Bevels.* (*Cast Steel*)—A blacksmith's punch an
cold-chisel, numbered as above, upon the cut, is intended to carry out th
heading of the lesson, making true tapers and bevels throughout.

No. 37. *Drawing and Forming.*—The first one, a right-hand, diamond
pointed lathe-tool (to be used in the machine-shop). The correctness of it
shape and temper prompts the student to have it as near perfect as possible
on account of having to use the same tool in his future work.

The second, a ratchet drill (its shape and temper differing considerabl
from a lathe or vertical drill) is clearly explained, while in comparison th
other forms are shown at the same time.

No. 38. *Drawing Tapers and Bevels.*—The first piece of this numbe
a graver or diamond-pointed hand-tool (to be used in the machine-sho
course), is plain in its appearance; but the main point is the tempering of th
piece.

The second, a matching-tool, a wood-working revolving tool. The objec
in introducing this plain form is to show in the last lesson (tempering) ho
such wood-working tools as moulding, planing, and matching tools shoul
be tempered to insure comparative success in working wood.

No. 39. *Tapers and Bevels.* (*Drawing Cast Steel.*)—The first piece, No
39, is a cape-chisel, used for cutting grooves in iron or any other metal. I
is formed from a square to an octagonal form, to give practice in changin
steel, as well as iron, into different shapes; but the main point is the forma
tion of the chisel part of the piece. The second piece, No. 39, is a centre
punch, a tool in use among nearly all metal-workers.

No. 40. *Drawing and Shaping.*—The first piece, No. 40, is cast-stee
offset spring. The second, a half-elliptic spring, made of spring steel. Th
object in introducing the different kinds of steel for this purpose is to sho
the difference in methods of tempering each, one being hardened in wate
the other in oil.

No. 41. *Drawing and Shaping.* (*Cast Steel.*)—A right-hand side too
to be used in course in machine-shops.

awing and Bevelling. (*Cast Steel.*) — A stone-drill, the cor-
emper being the main features in the piece.

uicing, Punching, and Tapering. (*Cast Steel.*) — A riveting
idea of bringing as many tools used in working iron into the
le has been carried out as far as consistent with the time
ng a general knowledge of the manipulations. At the close
ardening and tempering are explained. A set of the pieces
tempered before the class. Then each student tempers his
are then tested to see if they are fit to do the work intended

ust be made for the incorrectness in the shape of some of the
are the forms made by the students; but I think an impartial
ow that they will compare favorably with work done daily by
h as many years' experience as the student has had days.
stocks and dies for screw-cutting, and drills, countersinks,
lso.

DESCRIPTION OF COURSE IN VISE-WORK.

is allowed for the completion of each piece. If a student
ork within the given time, he is allowed to take the next
any article he chooses, to use up the time allowed for the
esson in filing is varied in such a manner as to insure the
the different shaped files, and their application to the varied

and filing course, occupying the same plate without regard to
ler, must necessarily be followed by number, without regard

ntended for filing are planed in order to remove the rough
ntal to files. The pieces, however, are planed out of true,
the student bring the piece to perfection by the use of the

No. 17. *Filing to Line.* — A plain block of cast iron, a cer-
which is filed off true to given lines struck off by the planer.
e student is taught how to regulate the movement of the file
luce a true surface, with the assistance of a straight edge.

No. 17. — The side and end are filed square with first true
square being used to assist in its formation.

No. 18. *Cast Iron.* — On one side of piece No. 17 a half-
is laid out and lined in the vise by the student, and finally
form with the file. In this case the one block is made to do
hree lessons, saving time and material.

No. 19. *Cast Iron.* — The object of this piece is to show
aped files used in making rack-teeth. This lesson shows how
med piece can be formed, aside from the rack.

No 20. *Dovetailing.* (*Wrought Iron.*) — This piece intro-
sawing, chipping, and filing. The difference and method of
materials, cast and wrought iron, are brought out in this
ng the method of finishing with the last lesson.

No. 21. — A cast-steel wrench, made in forging course, introduces inside and outside curve-filing, square hole filed from a round one, also draw-filing.

Lesson 7. No. 22. *Parallel Fitting Tongues and Grooves.* — An iron casting, lined out by the student and fitted in the form represented; the perfection of which is a good indication of the progress made after the few lessons already taken.

Lesson 8. No. 23. *Freehand Filing, with use of Hand-Vise.* — A round cast-steel piece reduced in diameter its entire length, and filed at one end to a tapering point; the main feature in the piece being a true taper, and having the point in the centre of the body.

Lesson 9. No. 25. — Comes under the same heading as last number. This piece is reduced the whole length in diameter; then a given portion is reduced still more, in order to form a shoulder on the piece, making what is termed a screw-blank (Material, cast steel.)

Lesson 10. No. 24. — Classed the same as last two numbers. Is a piece of cast steel (round) filed into the shape of an acorn, from memory, by the student.

Lesson 11. No. 26. *Ring-Work. Freehand 'Filing.* (*Cast Iron.*) — The blank to the right of the number shows the piece before filing; the one to the left is the finished form. The first form is square around the ring, and finally finished into a round form.

Lesson 12. No. 27. *Chipping Bevels.* (*Cast Iron.*) — The first form is a plain block, lined upon the planer the distance from the edge intended for the bevel. This piece introduces the use of the flat cold-chisel.

Lessons 13, 14, and 15. No. 28. — Upon this one block (wrought iron) we introduce key-way or key-seat chipping, half-round chamfering, convex and concave chipping, involving the use of cape-chisels, half-round and flat chisels, and shows the difference in treatment of the two materials; viz., cast and wrought iron. By making one block serve for the three lessons, it saves time, stock, and room.

Lesson 16. No. 29. *Drilling, Chipping, and Filing to Line.* — A planed flat piece of cast iron upon which is laid out or lined an oval shape. All that can be drilled out of it is next done, and the stock remaining within the lines is then chipped and filed to the line.

Lesson 17. No. 30. *Ward-Filing and Key-Fitting.* — A key-blank is taken for this purpose, and filed to given dimensions, and afterwards fitted to the lock.

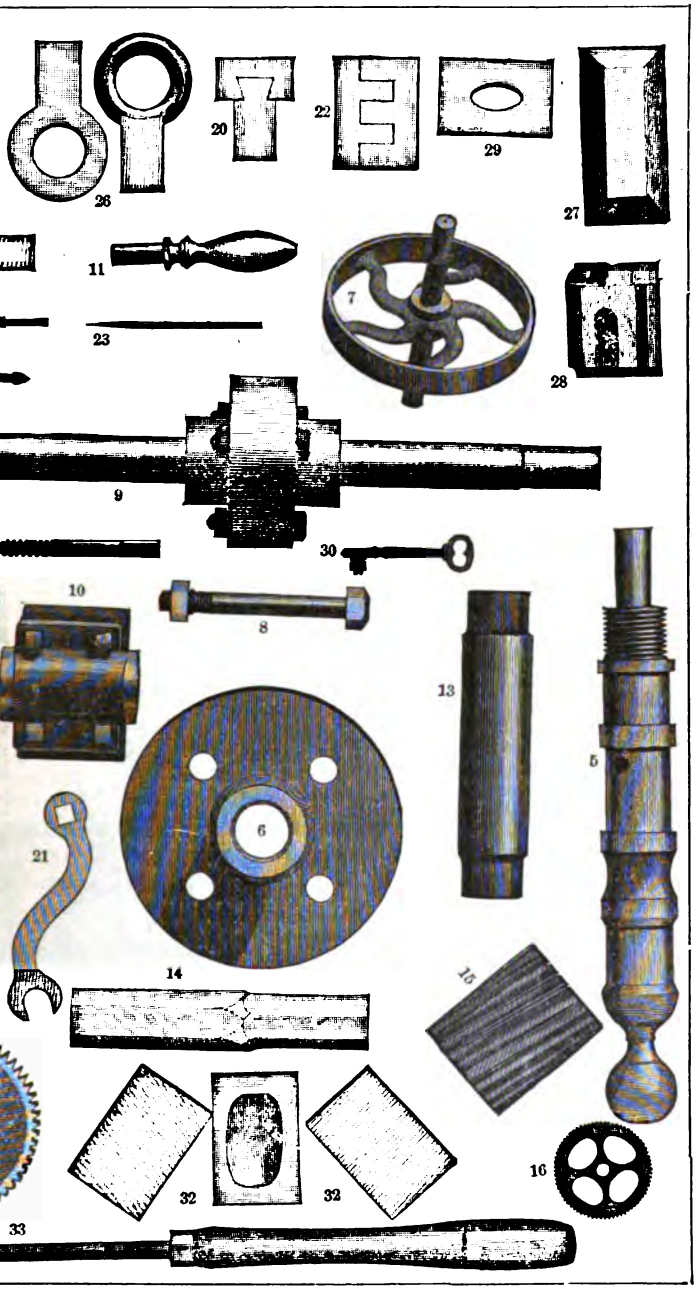
Lesson 18. No. 31. *Screw-Filing.* — The object of this lesson is to show how a screw can be cut with a file, when the lathe or stocks and dies are not available.

Lesson 19. No. 32. *Scraping.* — The three pieces together with the scraping-tool below them, No. 33, show what is necessary to produce a true surface by this method.

No. 33 is a very fine piece of forging and tempering, forged and finished in the filing course, and not set down in the forging course, by mistake.

Description of the Course in Machine-Tool Work.

Lesson 1. A screw-cutting or engine lathe is taken to pieces, and each particular piece, used in the construction of the tool, is described in order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that the class may be made familiar with it before using it, and by th
means expensive machinery may be saved from unnecessary damage.

LESSON 2. *Centring, Squaring Ends, Roughing and Finishing Chip.* (*Ca
Iron.*) — The piece of cylindrical form is first trued up, afterward centr
drilled, countersunk, squared up on the ends, and then a roughing an
smoothing chip.

LESSON 3. *Taper Turning.* (*Cast Iron.*) — The first piece numbered o
the cut is turned two different tapers. The stock of the last lesson is use
in this, to save the time centring and squaring up: consequently the firs
piece, Lesson 2, does not appear upon the cut.

No. 4. *Turning Flat Pieces upon the Edges.* — This piece, a flat chuck
drill, intended for use on piece No. 5, shows how flat pieces can be turned o
the sides and chamfered on the ends, and also made into a tool.

A rough wrought-iron piece of cylindrical form centred, etc., as in th
case of the preceding piece, but wholly differing in the manner of workin
it. In this lesson we introduce the tools required for turning and borin
wrought iron (differing considerably in form from the tools used in workin
cast iron); namely, the diamond-pointed tool, side tools, right and left twis
drill, flat chuck-drill (with its rest), taper reamer, screw-cutting tool, round
nosed or spoon-shaped tool, parting or cutting-off tool.

The introduction of various auxiliary tools, such as the centre rest, forke
centre, square centre, etc., gives a great amount of practice in wrought iro
working in this one piece. In this piece may be found centre rest chucking
the different forms of bearings in use, taper fitting, outside screw cutting
drilling through the piece at the end of the taper fit, convex and concav
turning with engine and hand or speed lathes, and use of tools accompany
ing the last-named lathe.

No. 6. *Chucking, Inside Screw Cutting, etc.* — This piece is fitted to th
screw cut upon the last piece, showing the uses of the boring-tool, recessin
or inside cutting-off tool, on the outside of the piece. The tools described i
the former lessons are brought in play, slightly altered to suit the materia
(cast iron), also the method of facing up the plate of iron in order to mak
it true, and showing how to lay out and drill holes at equal distances fror
one another upon a given circle.

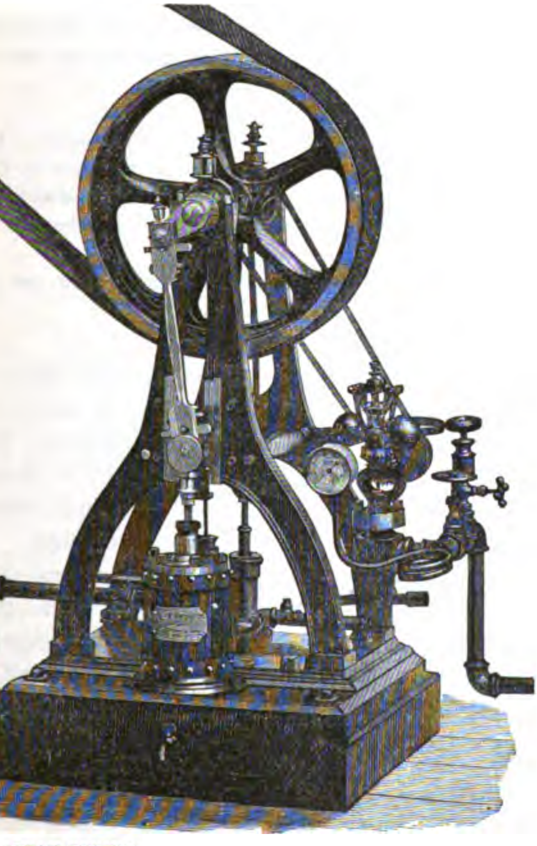
No. 7. *Pulley Chucking, Turning, Reaming, etc.* — A driving fit, crow
turning, squaring, and filing with speed, are introduced in this piece. Ac
companying it, and driven through the centre of the piece, is an arbor upo
which the pulley is turned. This arbor, like the one No. 13, is made c
steel annealed first, and tempered when the ends are finished; finally th
body is turned to fit the pulley, and by this method insuring the truthfu
ness of the arbor for a longer period on account of the ends being tempered

No. 8. *Bolt-Turning, and Screw-Cutting outside.* — This piece, made in th
forging course, is used here to show how this form can be finished with mor
accuracy than by the methods in general use, such as stocks and dies, screw
cutting machines, bolt-cutters, etc. It is only intended for true fitting, to
expensive a method for rough purposes, but invaluable for service in first
class machinery. The tapping of the nuts by the machine-tap, and finishin
of the nuts, are also brought in in this lesson.

No. 9. Shows the turning and fitting of shafting couplings, or any othe

riving or running fit is required. Key-seat cutting, splining,
., with the use of planer, hand-splining tools, etc., for this

oduces the use of the planer in fitting the two parts of the
n of the piece, termed a pedestal or pillar block. The lesson
the bolt-holes should be laid out and drilled in order that
d have a proper bearing in connecting the cap and bottom of
to make a substantial bearing for the introduction of the



STEAM-ENGINE CONSTRUCTED BY A. W. SANBORN.

the lesson; viz , a boring-bar, a tool used for boring engine-
In this piece although upon a small scale, is carried out
point required on a larger scale.

ass-Turning. —In this single piece the uses of the various
turning, at the same time the reverse tools for inside turn-
ed. The main point in the lesson is to show the great differ-
pe of the tools required for use upon the softer metals.

Nos. 12, 13, 14, 15, and 16 are pieces worked out in the Universal Milling Machine.

The uses of the index-head, gear-cutting, straight and bevelled, the many-sided forms that can be cut with the help of the index-head, spiral cutting, use of vise attached to the machine, etc , — all the movements necessary to accomplish any of the pieces, — are executed by the students before actual work is commenced. By this means they become familiar with the working of it, and consequently have more confidence in themselves, and are less liable to damage the machine or tools.

Nos 12 and 16 represent gear-cutting.

No. 13. — An arbor used in connection with No. 15 in spiral cutting.

No. 14. — A piece of plain milling, six sided on one end and seven upon the other.

No. 15 — A piece of spiral cutting.

Many other pieces are drawn in, such as fluting reamers, taps, etc.

After acquiring a knowledge of the use of the tools by this method, the student takes in hand a piece or machine of his own design, — for instance, a lathe, steam-engine, etc., — thus showing how easily this method can be applied to construction.

With this closes the present course of instruction in use in the machine-shop.

It has been supposed that these elementary shop courses could not be so conducted as to give the students much notion of any specific applications in construction ; but any one who will study Mr. Foley's report carefully will, I think, come to a different conclusion. As illustrations I insert cuts of work done by two pupils, whose whole knowledge and experience were gained in the shops during their two years' course. But the time devoted to shop instruction is too short to enable all students to show in a like way, and to the same extent, what they can do in application. If the course were three years, each student could devote the time allotted to shop instruction during the third year, in working out one or more of his own designs, which would be a proper termination of his shop studies in connection with the school.

ELECTRIC MACHINE MADE BY H. M. POPE.

CHANIC ART INSTRUCTION

STATE COLLEGE, ORONO, MAINE.

rnald says, "This instruction was introduced
ment of Mechanics four years ago, and has been
constant interest and success. We have estab-
of a temporary character, two courses, — vise-
g, carrying out the system much as is done in
tts Institute of Technology. Pupils take to the
and their progress in it has been in the highest
ory. The number of lessons in vise-work is
ree hours each, five per week. The course in-
hree different pieces. Sometimes the class has
ach section working on alternate days. The
ng includes twenty-eight pieces, with lessons in
as in vise-work, and about the same number.
date possible we design to extend the system in
Ve do not regard the work as interfering with
ut as constituting a part of a carefully devised
se of study, in which it is entitled to the time
scarcely possible that manual skill can be ac-
dance with a definite and progressive plan of
the principles and processes are made prominent,
ame time giving a certain amount of intellectual
nount by no means unimportant."

ARTMENT OF MECHANIC ARTS,

UE UNIVERSITY, LAFAYETTE, IND.

collegiate department of the university was
d made to embrace three courses, — the scien-
ltural, and the mechanical. An "experimental
tached to the agricultural course, and workshops
al course. Mr. William F. M. Goss, a graduate
of Mechanic Arts of the Massachusetts Insti-
ology, was appointed instructor in mechanics.
urnished me with a plan of the shops, and a
nt of the equipment and method of instruction

pursued in them, from which I have made the following c densed statement: —

"Applicants for admission to the mechanical course must be over sixt years of age, and pass satisfactory examinations in the common branc elementary algebra including quadratic equations, history of the Uni States, physical geography, and physiology. Graduates of high schools, hold a certificate of the State Board of Education, are admitted with examination.

Mechanical Course.

N.B. — The required branches are printed in SMALL CAPS.; the elective branches in *Italic*

FRESHMAN YEAR.

	SHOP PRACTICE.			
1st Term.	WOOD-WORK.	CARPENTRY.	GEOMETRY.	INDUSTRIAL DRAWI
2d Term.	PATTERN-MAKING.	PATTERN CONSTRUCTION. CASTING AND FOUNDING.	GEOMETRY.	INDUSTRIAL DRAWI
3d Term.	VISE-WORK.	MACHINE-DRAWING.	GEOMETRY, 6 w. ALGEBRA.	INDUSTRIAL DRAWI

ENGLISH COMPOSITION, one lesson a week; *Military Tactics*, three exercises a week.

SOPHOMORE YEAR.

	SHOP PRACTICE.			
1st Term.	FORGING.	MACHINE-DRAWING.	HIGHER ALGEBRA.	ANCIENT HISTO
2d Term.	MACHINE-WORK.	MACHINE-DRAWING.	TRIGONOMETRY.	PHYSICS.
3d Term.	MACHINE-WORK.	MILL-WORK; MACHINERY.	SURVEYING.	PHYSICS.

LITERARY EXERCISES, one a week; *Military Tactics*, three exercises a week.

The shop practice includes two hours of actual work in the shop daily, five days each we Students who wish to take a course in Mechanical or Civil Engineering will be admitted to School on the completion of the above course. The School of Engineering will be opened September, 1882.

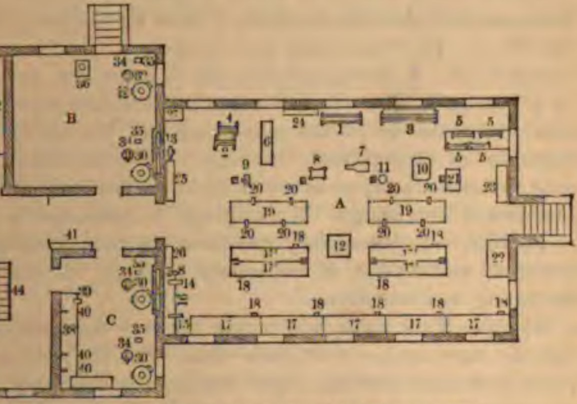
Explanation of the Plan. — Room *A* is the main shop for wood and ir work; *B* and *C* are the forging shops; *D* is a storage-room; *E* is used the chemical department. No 1, machine lathe, 6-foot bed; 2, machi lathe, 3-foot bed; 3, wood lathe, 9-foot bed; 4, speed lathe, for centri and finishing, 3½-foot bed; 5, four wood-turning bench lathes, 5-foot be 6, machine planer, 3½-foot bed; 7, vertical drilling machine; 8, double eme grinder; 9, grindstone; 10, scroll-saw; 11, small fret-saw; 12, circular sa both rip and cross cutting; 13, Sturtevant blower; 16, shaft running tween engine-house and shop; the pulleys, 14 and 15, distribute the pow from this shaft to the line-shafts of the shops (not shown), by which of the above machinery is driven; the shaft, 16, is coupled directly to t engine shaft; 17, nine wood-working benches; 18, vises to each bench; two iron-working benches; 20, eight Parker vises for iron-work; 21, structor's table; 22, table for student work; 23, closet for miscellane wood-working tools and supplies; 24, cabinet for chucks, drill-gear, et for the machines; 25, cabinet of closets for students' clothes; 26, closet iron-work supplies, files, bolts, etc.; 27, sink provided with wash-basi 28 and 29, cabinets for lathe-tools; 30, four wrought-iron forges; 34, f anvils; 35, four tool-racks; 36, portable forge; 37, case for forge-work; bench; 39, vise; 40, racks for iron and steel; 41, closet for paints and oi ng small pieces of lumber; 43, rack for stock of lumber; floor; 45, entrance steps.

ction is divided as follows: —

wood	12 weeks	(120 hours).
. . . .	4 weeks	(40 hours).
ıg	12 weeks	(120 hours).
ron	10 weeks	(100 hours).
n and steel	18 weeks	(180 hours).
work in iron	20 weeks	(200 hours).

the shop instruction is, first, to prepare students for a cal engineering; and, second, as a preparation for some

uction. — We have series of unchanging principles which actically through the use of corresponding sets of tools; of models are principally used, we vary these with each dimensions, always keeping in view the principles to be feature is to make the models assume a form which may,



THE MECHANIC ARTS SHOPS, PURDUE UNIVERSITY.

ırds be utilized. The principles involved will always be ıtilization of *secondary*, consideration.

entry and Joinery. — 1, Exercise in sawing and planing application; a box nailed together; 3, mortise and tenon rtise and tenon; an open dovetailed mortise and tenon); a dovetailed keyed mortise and tenon; stock 2″ thick, rtise pieces 10″ long, and tenon pieces 6″ in the clear; 4, dovetail; 6, lap-dovetailing and rabbeting; 7, blind or , mitre-box; 9, carpenter's trestle; 10, panel-door; 11, tion of king-post truss roof; 13, drawing models. Ele-mple forms in each case.

— 1, Elementary principles, 1st straight turning, 2d cut-curves with the chisel, 4th compound curves formed with dles; 3, mallets; 4, picture-frames (chuck-work); 5, card-rk); 6, match-safe (chuck-work); 7, ball. The articles present good forms for learning the art, and each of the last three a new difficult feature of chucking.

Pattern-Making. — The student is supposed now to have some skil bench and lathe work, which will be increased; but the direct object is teach what forms or patterns are in general necessary, and how they m be constructed in order to get a perfect mould from them. We have thought it necessary that each student should do the same examples accomplish this object. In this way the work has been much more vari each student learns the particular features in the work done by his neighb and gets a much broader knowledge than could in the same time be acqui in any other way. Besides simple patterns easily drawn from the sand, s as glands, ball-cranks, etc , there followed a series of flanged pipe-joints 2½″ pipe, including the necessary core-boxes, in which all took part; t pulley patterns from 6″ to 10″ in diameter, built in segments for streng and to prevent warping and shrinkage; lastly, a complete set of patterns a three-horse-power horizontal steam-engine, all made from drawings of finished piece.

Vise-Work in Iron. — 1. Given a block of cast iron 4″ by 2″ by 1½ thickness, to reduce the thickness ¼″ first by chipping, and then finish the file. 2. To file a round hole square. 3. To file a round hole into elliptical one. 4. Given a 3″ cube of wrought iron, to cut a spline 3″ by by ¼″, and, 2d, when the under side is a one-half round hollow. These cuts involve the use of the cape-chisel, and the round-nose chisel, and examples of very difficult chipping. 5. Round filing, or hand vise-w with the same examples as are given in the cut illustrating the course at Institute of Technology. 6. Scraping. 7. Some special examples of fitti

Forging. — 1. Elementary processes, drawing, bending, upsetting. 2 course in welding. 3. Miscellaneous forgings. 4. Steel-forging, includ hardening and tempering.

Machine-Work. — In this course we have used no set models, the w varying more or less with each class. But the aim is to teach centri plain and taper turning, taper fitting, screw cutting, to bring in all adjuncts of the machines, and to give practice in their use. All students not upon the same work at the same time; but each during his course an opportunity of learning the use of all the tools and appliances. Nor i given time allotted to each piece. The slow ones must work extra tim keep up, while those who are quick are given extra work. All students required to devote all the time allotted to each shop course, and not allo to pass from one to another in advance of the class, unless they are pr cient and can enter a regular class in an advanced branch.

The shop instruction is supplemented by a course of lessons on the the of the hand and machine tools; more or less use being made of Shell "Workshop Appliances," Rose's "Practical Machinist," and notes fo in the first two volumes on "Building Construction" published by Rivi tons.

I regret that I cannot devote more space to Mr. Goss's int esting account of the good work he is doing at Purdue, wh is heartily indorsed by President White.

E MANUAL TRAINING SCHOOL

IGTON UNIVERSITY, ST. LOUIS, ESTABLISHED JUNE 6, 1879.

C. M. Woodward, the director of this school, has with the following details of cost, the cuts repre- building and floors, and the excellent statement ided. Building cost twelve thousand dollars; tools re, eleven thousand; land, six thousand: total, thousand dollars. About one-third of the one l two pupils are on free scholarships held by the Ir. Samuel Cupples pays two hundred and fifty nonth for five years (fifteen thousand in all) for enses. This with tuition-fees will about cover the five years from date of foundation.

General Statement.

f *Admission.* — Candidates for admission to the first-year class t fourteen years of age, and each must present a certificate of racter signed by a former teacher.

lso pass a good examination on the following subjects: —

ic; including the fundamental rules, common and decimal tables of weights, measures, and their use. Candidates will rally in mental arithmetic, including fractions and the multi- up to twenty. 2. Common-school geography. 3. Spelling p. 4. The writing of good English.

for the second-year class must be fifteen years of age. All ed above will be required of them, and, in addition, the p-work of the first year.

irements apply to those desiring to enter the third-year class.

tudy. — The course of instruction covers three years, and the the pupils is about equally divided between mental and es. Neither intellectual nor physical labor is carried to the iness.

from recitation to the shop, and from shop to study and reci- eable and healthful, keeping both mind and body fresh and

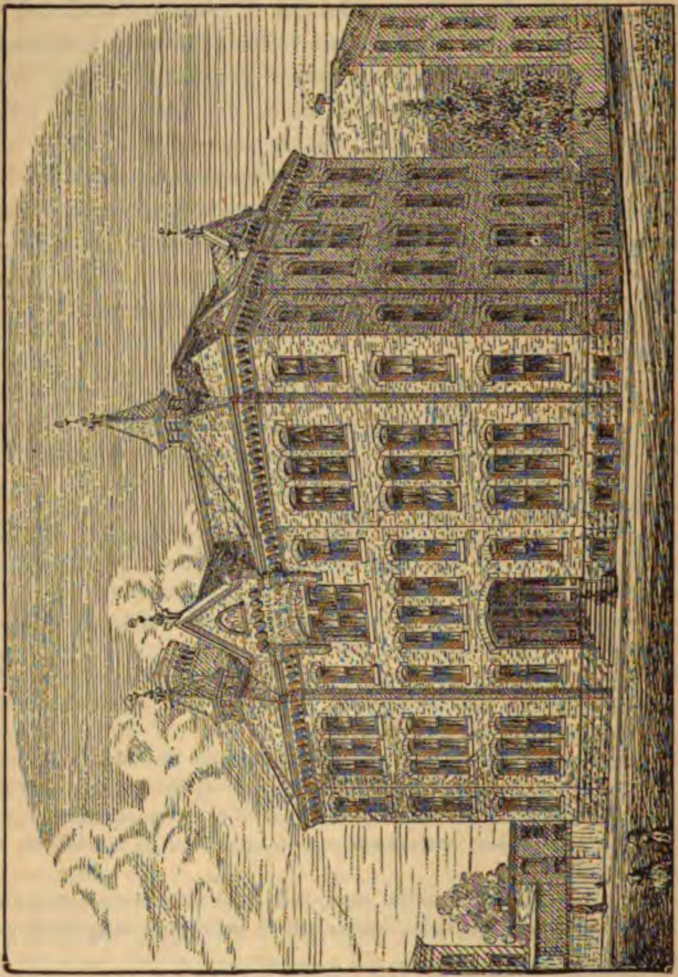
ining. — In mathematics the course of instruction is thor- extended. Arithmetic, algebra, geometry, and plane trigo- tudied in succession. The application of these branches is eeping, mechanical drawing, physics, mechanics, and mensu-

ntion is given to physical geography.

language and literature is carefully studied throughout the course. Every graduate of the school will have a fair command of the English language, whether in writing or speaking.

History, practical ethics, and political economy each finds a place on the programme, the treatment of each subject being adapted to the capacity of the class.

Manual Training. — Special attention is paid to drawing during the whole course. Drawing is the shorthand language of modern science. Careful drawings are to technically educated people what pictures are to children. They show at a glance what it is not in the power of words to express. It is a universal language, and should be read and understood by all.



MANUAL TRAINING SCHOOL, WASHINGTON UNIVERSITY, ST. LOUIS.
(Floor Plans on opposite page.)

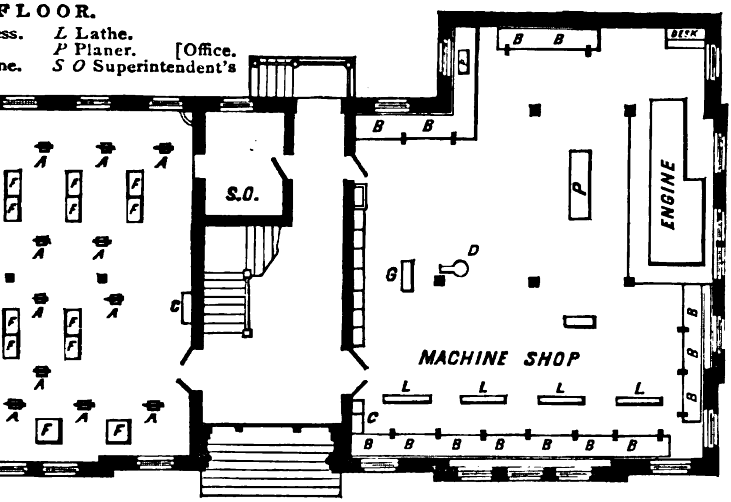
The course in drawing embraces three general divisions: —

FLOOR.

ss. *L* Lathe.

P Planer. [Office.

ne. *S O* Superintendent's



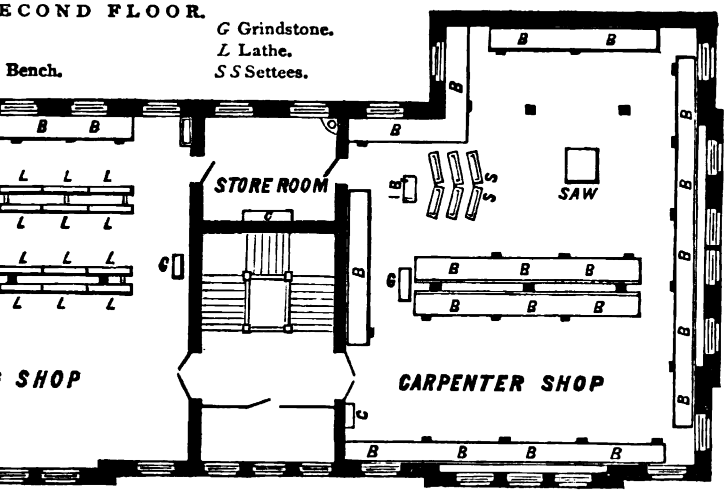
ECOND FLOOR.

Bench.

G Grindstone.

L Lathe.

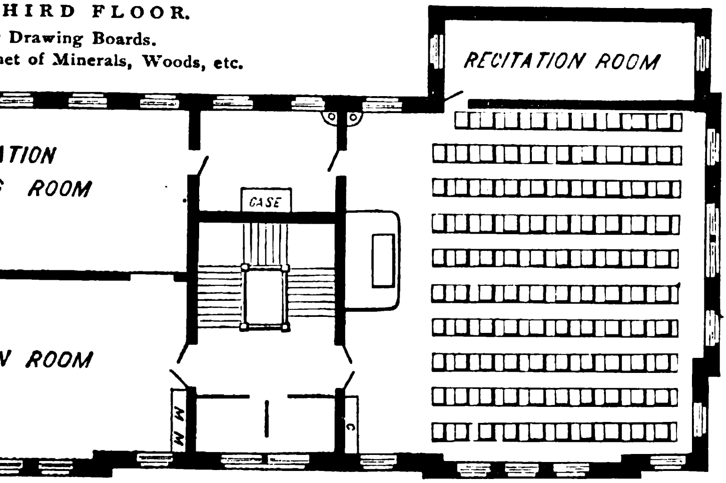
S S Settees.



HIRD FLOOR.

Drawing Boards.

iet of Minerals, Woods, etc.



1. *Freehand Drawing*, designed to educate the sense of form and pro
tion, to teach the eye to observe accurately, and to train the hand to rap
delineate the forms either of existing objects or of ideals in the mind.

2. *Mechanical Drawing*, — including the use of instruments; geom
constructions ; the arrangement of projections, elevations, planes, and
tions ; also the various methods of producing shades and shadows with
or brush.

3. *Technical Drawing or Draughting*, — illustrating conventional c
and signs; systems of architectural or shop drawings; and at the same
familiarizing the pupil with the proportions and details of various classe
machines and structures.

Workshop Instruction. — In connection with drawing comes instructio
the nature, theory, and use of tools.

But which are the tools whose use is to be taught? Before answe
this question, it is to be observed that the apparently great variety in
and mechanical processes arises from different combinations of very si
elements. The number of hand-tools is small: one can easily count t
on his fingers. They are the *axe*, the *saw*, the *plane*, the *hammer*, the *sq*
the *chisel*, and the *file*. The study of a tool involves an examination o
form and the theory of its action, as well as its actual use at the benc
forge. After the hand-tools, pupils should become familiar with the typ
machine-tools which are chiefly employed in mechanical pursuits.

A knowledge of materials and processes is as important as an acqua
ance with tools. The characteristic properties of different kinds of w
the difference between cast and wrought iron; the properties of steel, b
and other materials, — these are learned only by actual contact and pers
investigation.

Then the student should understand the relation between different k
of work, their sequence and mutual dependence.

Thus the making of patterns precedes the use of castings. The cast
themselves are planed, bored, drilled, and turned, by the use of sp
machine-tools. Wrought iron and steel are worked at the forge previo
to being used in the machine-shop.

Study and Management of Steam. — The steam-generating apparatu
the university consists of a battery of three large steel boilers set and
nished in the most approved manner. These boilers furnish heat for
entire group of university buildings, as well as steam for the engine in
shop. The engine is of the best pattern and superior workmanship, an
capable of about sixty horse-power. During their second and third y
the pupils make a careful study of the engine and furnaces, and are p
tised in the management and care of them both.

Project for Graduation. — Before receiving a diploma of the school,
student must execute a project satisfactory to the faculty of the sc
The project consists of the actual construction of a machine. The fini
machine must be accompanied by a full set of the working-drawings acc
ing to which the machine is made. If it is not feasible to construct
patterns for castings of such machine, proper directions for their cons
tion must accompany the drawings.

Students have no option or election as to particular studies; each
conform to the course as laid down, and take every branch in its order.

nt of studies and shop-work by years is substantially as

rithmetic, completed; algebra, to equations; English cture and use; history of the United States; physical ng, mechanical and freehand; penmanship; carpentry -carving; wood-turning; pattern-making.

- Algebra, through quadratics; geometry, plane; natural sh history; English composition and literature; princi- ; penmanship; drawing, line-shading and tinting ma- letail drawing; blacksmithing, drawing, upsetting, bend- lding, tempering; use of machine-tools.

Geometry, solid; plane trigonometry and mensuration; n and literature; history; ethics and political economy; wing, machine and architectural; study of the steam- k and fitting; work in the machine-shop, turning, drill- -cutting, etc.; execution of project.

PROGRAMME. FIRST TERM—1881-82.

9—11 A.M.			11 A.M.—1 P.M.				1—3 P.M.			
Shop-work.			40 min. Algebra	40 min. English History	20 min. Study.	20 min Recess.	40 min. Physics	20 min. Study.	60 min. Draw'g.	
g.	20 min. Study.	40 min Algebra	Shop-work.				20 min. Recess.	20 min. Study.	40 min. Physics	40 min. English History
Shop-work.			60 min. Draw'g.	20 min. Recess.	40 min. Gram'r.		40 min. Arith.	40 min. Study.	40 min. Physic'l Geog.	
r.	20 min. Study.	60 min. Draw'g.	Shop-work.				20 min. Recess.	20 min. Study.	40 min. Arith.	40 min. Physic'l Geog.
	40 min. Study.	40 min Physic'l Geog.	40 min. Gram'r.	20 min. Recess.	60 min. Draw'g.		Shop-work.			

lp takes the place of Physical Geography and Physics once a week.
has Music Lesson once a week, extending the daily session half an hour.
on takes the place of Grammar and History once a week.
ccupies half the study time three times a week.

e Shops and Tools. — The second floor of the building is ork, and comprises a carpenter-shop, store-room, and ch shop has uniform accommodations for classes of ur such classes or divisions can be taught daily in each. of the uniform sets of edge-tools for his exclusive use, awer. For the care and safety of these tools he is held r tools, such as squares, hammers, wrenches, etc., are e of each class in succession.

hop. — This contains twenty benches, vises, and sets of mmon, a power grindstone, the instructor's desk and the class, and the requisite quota of clamps, glue-pots, ircular-saw machine is provided for getting out stock lass) and jobbing.

The Turning Shop contains twenty speed lathes, twelve-inch swing and five-foot bed, with complete equipment of face-plates, chucks, etc., for eighty pupils. The shop contains several eight-foot benches for pattern-work, a power grindstone, and a moulder's bench, and tools for illustrating practically the use and handling of patterns for foundery-work.

The Machine-Shop. — The first floor of the building is devoted to metal-work, and comprises the machine and blacksmith shops. At present (December, 1881) the machine-shop is not in use by the pupils of the Manual Training School. [The school has not been in operation quite a year and a half, and hence the students have not yet reached this shop in their course.] It possesses but a partial equipment, consisting of four engine-lathes of fourteen-inch swing and five-foot bed; a speed lathe; a planer, twenty-one-inch by twenty-one-inch by five feet; a twenty-five-inch drill, and a large power grindstone. Ten vises and benches, with forty drawers, afford opportunity for bench-work. By September, 1882, it is expected that this shop will be furnished for a class of twenty students at once. The engine occupies a part of this shop

The Blacksmith-Shop has its complete equipment of twenty forges, anvils, tubs, and sets of ordinary hand-tools. Ten sets of heavy tools suffice for twenty pupils, as they may work in pairs as "smith and helper." The blast is supplied by a fan blower, and a powerful exhaust fan keeps the shop completely free from smoke and gas. In connection with one of the larger forges is a hand-bellows, which can be used when the engine is not running. Every shop exercise lasts two hours: consequently the shop readily accommodates eighty pupils per day.

All the machinery of the shops is driven by a fine Corliss engine, fourteen-inch cylinder and forty-two-inch stroke, running at sixty-five revolutions per minute The engine was built specially for the school by Messrs. Smith, Beggs, & Rankin, of St. Louis. Steam is furnished from the university boilers. The building is heated by the exhaust steam from the engine. This equipment of steam-power will furnish to pupils of the third-year class the means of becoming familiar with such machinery on a scale unsurpassed.

The shops throughout contain ample conveniences for the shop-clothing of the pupils, and the basement contains facilities for washing with hot and cold water.

The drawing-room and the two recitation-rooms are on the third floor.

All the shops and other rooms are spacious, and amply lighted, well warmed and ventilated. The location of the building, on the south-west corner of Eighteenth Street and Washington Avenue, is one of the best in the city, being high and healthful.

The Theory of Shop-Work. — The application of the educational idea to mechanic arts is strictly analogous to its application to chemistry and physics. In each, the use of apparatus and the treatment of material is taught by systematic experiments in suitable laboratories. In each, every thing is arranged for the purpose of giving instruction in the principles involved, and for acquiring skill in manipulation, and not for the sake of the production of salable compounds of either drugs or apparatus.

Chemical laboratories might be manufactories, and mixtures might be

the efficiency of such a laboratory for the purpose of edu-
ry small. So a manufacturing establishment can be made
ction in the use of tools, but its cost would be great in
apacity, and the variety of work would be limited by its

are not taught. — The scope of a single trade is too nar-
al purposes. Manual education should be as broad and
tual. A shop which manufactures for the market, and
from the sale of its products, is necessarily confined to
a systematic and progressive series of lessons is impos-
eat cost. If the object of the shop is education, a student
to discontinue any task or process the moment he has
ll. If the shop were intended to make money, the stu-
pt at work on what they could do best, at the expense of
tility.
at students take more interest in working upon something
ed, has intrinsic value, than they do in abstract exercises.
ble, and proper use should be made of this fact; but, if all
mited to such practical examples, our schools would be
of a school is that pupils are to be graded and taught in
aimed at being not at all the objective product or fin-
e intellectual and physical growth which comes from the
use is the elaborate solution in algebra, the minute draw-
l translation, after it is well done? Do we not erase the
e other, with the clear conviction that the only thing of
ipline, and that that is indestructible?
ducation, the desired end is the acquirement of skill in the
aterials, and not the production of specific articles: thence
mechanical processes and manual arts and typical tools of
cupations of men, arrange a systematic course of instruc-
and then incorporate it into our system of education.
ching any one trade, we teach the essential mechanical

with the foregoing principles, the shop training is gained
efully graded lessons designed to cover as much ground as
each thoroughly the uses of ordinary tools. This does not
ent of sufficient skill to produce either the fine work or the
ed mechanic; this is left to after-years. But a knowledge
machine should be used is easily and thoroughly taught.
roducts or results of such lessons have little or no value
and hence the shops do not attempt to manufacture for the

d, work of immediate utility is of greater interest to stu-
ct lessons. Such work has an undoubted value, and is in
ble, provided it does not hinder or interfere with regular
rtunities for such constructive work are constantly occur-
f a large institution are many, and when they can be sup-
kill it is a benefit to all concerned. In this way, outside
pupils have the means of applying their knowledge and of

gaining additional practice. The yearly aggregate of such productions is quite large, and it affords undeniable evidence of the efficiency of systematic instruction.

Details of Shop Instruction. — The shop instruction is given similarly to laboratory lectures. The instructor at the bench, machine, forge, or anvil, executes in the presence of the whole class the day's lesson, giving all needed instructions, and at times using the blackboard. When necessary, the pupils make notes and sketches, and questions are asked and answered, that all obscurities may be removed. The class then proceeds to the execution of the task, leaving the instructor to give additional help to such as need it. At a specified time that lesson ceases, the work is brought in, commented on, and marked. It is not necessary that all the work assigned should be finished: the essential thing is, that it should be well begun and carried on with reasonable speed and accuracy.

It is almost useless to say that the personal characteristics of pupils are even more marked in this work than in any ordinary recitation, from the fact that no text-books are used, nor is there previous study. The length of time required by different pupils in a large class for the doing of a specified piece of work varies considerably, Hence additional lessons or constructive work are arranged for the brighter and quicker members.

Work in the blacksmith-shop is in one essential feature different from any other kind. Wood or cold iron will wait any desired length of time while the pupil considers how he shall work, but here comes in temperature subject to continual change. The injunction is imperative to "strike while the iron is hot," and hence quick work is demanded, — a hard thing for new hands. To obviate this difficulty, bars of lead are used, with which the lesson is first executed, while all the particulars of holding and striking are studied. The lead acts under the hammer very nearly like hot iron, and will permit of every operation of the blacksmith's shop except welding. Much is anticipated from its use as a preparation for the working of iron, as each lesson is first executed in lead.

One of the most difficult lessons in the art of the smith is that of managing the fire. The various kinds of heat are explained and illustrated, and habits of economy of both iron and fuel are inculcated.

How the Use of Tools is taught. — Frequent requests have been made for detailed descriptions or drawings of the models actually used in the several shops. Such requests have generally been refused, for several good reasons. In the first place, the main object of one or more lessons is to gain control and mastery of the tool in hand, and not the production of a particular model. The use of the tool may be well taught by a large variety of exercises, just as a knowledge of bank discount may be gained from the use of several different examples. No special merit can be claimed for a particular example; neither can a particular model, or series of models, have any great value. No good teacher is likely to use precisely the same set twice.

Again, the *method* of doing a piece of work, and not the finished piece, may be the object of a lesson. To illustrate: Directions are given to a class in carpentry to saw a piece of wood, holding it upon the bench-dog. A pupil is found attempting to do the work, holding it on a trestle. On being corrected, he insists that he can't do it so well in that way. The teacher

d reply, " Then that is the way you should do it, until you
Now, the exercises by which certain methods of using tools
often depend upon varying circumstances, such as the qual-
al, the age of pupils, and the pupils' knowledge of working-
ead of giving particular descriptions of exercises, we prefer
ral methods by which the use of the various tools is taught.
not given out all at once: they are issued as they are
all the members of the class alike.

work the tools used are, the crosscut, tenon, and rip saws;
-square, bevel and gauge, hammer, mallet, knife, rule and
es and slips; and, of edge-tools, the jack and smoothing
el, and gouges. Braces and bits, jointer planes, compass
nd other tools are kept in the shop tool-closet, to be used

the plane, with the square and gauge, are the foundation
ll the pupils in their use numerous lessons are given, varied
avoid monotony. The pupil being able to plane a piece
o keep to the line in sawing, the next step is to teach him
of the chisel in producing simple joints of various kinds.
apes are given with the intent to familiarize the pupil with
yles and methods of construction.

sizes of the same tool (chisels, for instance) require different
ls of handling; and the means of overcoming irregularities
aterial form another chapter in the instruction to be given.

oduction of each tool, the pupils are taught how to keep the
They are taught that sharp tools are absolutely necessary
make them realize this, is a most difficult task.

a general way much that has already been stated applies to
Five or six tools only are used, and from previous experi-
know how to keep them in order. At first a large gouge
nd the pupils are taught and drilled in its use in roughing
ing right-line figures; then convex and concave surfaces;
mprising all these, — all in wood-turning with the grain. A
ws, and its use in conjunction with the gouge is taught.
ller gouge, chisel, and parting-tool, and a round-point are
riety of shapes are executed. Next comes turning across
bored and hollow work. Next, chucking, and the various
ating wood on face-plates, chucks, mandrels, etc. Finally,
woods, polishing, jointing, and pattern work.

in iron-work nothing must as yet be said, for the reason
o speak only of work gone over, and that department is not
ed.

d Purpose of the School. — The Manual Training School
e to the conviction on the part of its founders that the inter-
demand for young men a system of education which shall
actual duties of life in a more direct and positive manner
he ordinary American school.

e future an increasing demand for thoroughly trained men
s in manufacturing establishments as superintendents, as

foremen, and as skilled workmen. The youth of to-day are to be the men of the next generation It is important that we keep their probable life-work in view in providing for their education Excellent as are our established schools, both public and private, it must be admitted that they still leave something to be desired; they do not, and probably they cannot, cover the whole ground.

It is believed that to all students, without regard to plans for the future, the value of the training which can be got in shop-work, spending only from four to twelve hours per week, is abundantly sufficient to justify the expense of materials, tools, and expert teachers.

It is very well understood that many students cannot wisely undertake the full course of intellectual study now laid down for the regular classes of a college or polytechnic school. It occasionally happens that students, who have special aptitudes in certain directions, find great difficulty in mastering subjects in other directions. In such cases it is often the best course to yield to natural tastes, and to assist the student in finding his proper sphere of work and study. A decided aptitude for handicraft is not unfrequently coupled with a strong aversion to and unfitness for abstract and theoretical investigations. There can be no doubt, that, in such cases, more time should be spent in the shop, and less in the lecture and recitation room.

One great object of the school is to foster a higher appreciation of the value and dignity of intelligent labor, and the worth and respectability of laboring men. A boy who sees nothing in manual labor but mere brute force despises both the labor and laborer. With the acquisition of skill in himself, comes the ability and willingness to recognize skill in his fellows. When once he appreciates skill in handicraft, he regards the workman with sympathy and respect.

In a manual training school, tool-work never descends into drudgery. The tasks are not long, nor are they unnecessarily repeated. In this school, whatever may be the social standing or importance of the fathers, the sons go together to the same work, and are tested physically as well as intellectually by the same standards. The result in the past has been, and in the future it will continue to be, a truer estimate of laboring and manufacturing people, and a sounder judgment on all social problems.

THE RESULTS OF EXPERIENCE.

The managers of the school are abundantly confirmed in their views, as set forth in the prospectus two years ago, by the experience of the school during its first year and a half.

From the first the school has been well patronized, and vacant seats have been few. At times every seat has been filled. The school was opened with sixty seats, all for a single class.

The entire number of students enrolled during the first year was sixty-four. The number of seats was increased to one hundred during the last summer. The number of students enrolled thus far this year is one hundred and two, of whom forty-two were members of the school last year.

The zeal and enthusiasm of the students has been developed to a most gratifying extent, extending into all the departments of work. The variety afforded by the daily programme has had the moral and intellectual effect

ı unusual degree of sober earnestness has been shown. Suc-
or shop-work has often had the effect of arousing the ambi-
ıtics and history, and *vice versa.*
ıe two subjects, drawing and shop-work (and we had little
·dge of what could be done with boys as young as those of
.ass), has been quite remarkable. To be sure, there was no
ıal result; but the progress has been more rapid than it
ble to expect. The second-year class contains already several
htsmen, and not a few pattern-makers of accuracy and skill.
·orking from drawings and to nice measurements has given
confidence in themselves altogether new. This is shown in
ith which they undertake the execution of small commissions
e school, or for the students of other departments. In fact,
sefulness of our students is making itself felt at home, and
ınces the result has been the offer of business positions too
rejected. This drawback, if it can be called one, the school
ffer. The better educated and trained our students become,
ll be the temptations offered to them outside, and the more
be for us to hold them through the course. Parents and
ld avoid the bad policy of injuring the prospects of a promis-
·d, by grasping a small present pecuniary advantage, at the
ıter rewards in the future.
e Russian Plan. — In another important respect our expecta-
ı more than realized; namely, in our ability to introduce class
ing instruction in the theory and use of tools. All divisions
ve thus far been limited to twenty pupils; and, as a rule, all
division have just the same work.
s have been two hours long, though often the students have
r work. It is but due to the pupils of the school to say that
ormly seconded all efforts looking towards good order and
No little surprise has been expressed by visitors, at seeing
d independently twenty boys can work for a couple of hours
ım. Though all classes handle keen-edged tools, no serious
appened, and very rarely have small injuries been received.

three schools in France which I had the pleasure
n 1878, which will prove instructive. — First,

THE ÉCOLE COMMUNALE,

RUE TOURNEFORT, PARIS.

n elementary school containing between two and
ed pupils ranging in age from eight or nine to four-
een years of age. The prescribed course is three
besides the studies suitable to the age of such

pupils, three points will attract our attention: first, the
hand drawing, which is excellent, showing the best of teacl
second, modelling in clay, and duplicating the best speci
in plaster; and, third, shop-work in wood and the metals, t
by about fifty of the older pupils. The modelling would
been considered remarkable, for a much older class of pu
and I saw nothing to compare with it, either in design or
cution, outside of the special art schools. The facilities for
instruction in the working of wood and metals were less
plete, the shops being fitted to teach but few at a time.
mechanic art method is strictly followed, the samples used b
those presumably best adapted to teach principles and proce
and having no marketable value, on the ground that art
made for sale cannot be so well adapted for systematic
progressive instruction. All commercial considerations ar
principle, scrupulously avoided. For two years the pupil
practice in the different shops; but in the third his
instruction is confined to some specialty. I was both delig
and instructed by my visit; and left recognizing in M. Lau
the genial head of the school, a man whose ample knowl
was quickened by a genuine enthusiasm and love of his wo

THE ÉCOLE MUNICIPALE D'APPRENTIS,

BOULEVARD DE LA VILLETTE, PARIS.

This is one of the best examples of a trade-school mod
by the mechanic art idea. The course of instruction is t
years. In January, 1873, it had seventeen pupils, and
numbers over two hundred. The principal feature of
school is its large and well-appointed machine-shops, arra
for manufacturing purposes. The aim of the school is to
out good workmen. During the first year the student w
two weeks at a time, in the various shops, after whicl
devotes himself to a particular specialty; that is, he learns
trade of a machinist, a carpenter, a joiner, a pattern-mak
founder, or a blacksmith, in much the same way that an
prentice in any well-appointed establishment would learn
same specialty. As there are only three foremen, it is obv
that the amount of instruction given to each student mus
very small.

rom seven A.M. to half-past two P.M., is divided as
seven to eight, study; from eight to eleven, shop-
eleven to twelve, breakfast, recreation, and gym-
twelve to half-past twelve, shop-work; from half-
hree, recess and lunch.

cheme of Study and Work from 3 to 7 P.M.

r.	3 to 4.	4 to 5.	5 to 6.	6 to 7.
	Study.	Geometry.	French.	Geometry.
	Geometry.	Study.	Geometry.	English.
	Workshop.	Workshop.	Drawing.	Law.
	Drawing.	Drawing.	Study.	English.
	Study of Tools.	Study.	Algebra.	Hist. and Geog.
	Workshop.	Workshop.	Mechanics.	Descriptive Geometry.
	History.	Chemistry.	French.	Geometry.
	Drawing.	Drawing.	Geometry.	Physics.
	Workshop.	Workshop.	Drawing.	Sketching.
	Reading.	Geography.	Arithmetic.	English.
	French.	Chemistry.	English.	Arithmetic.
	Workshop.	Workshop.	Physics and Chemistry.	Technology.
	Drawing.	Drawing.	French.	Geometry.
	Mechanics.	Book-keeping.	Geometry.	Study.
	Workshop.	Workshop.	Mechanics.	Sketching.
	Study of Tools.	Arithmetic.	Physics.	Study.
	Drawing.	Drawing.	French.	Study.
	Workshop.	Workshop.	Drawing.	Sketching and Drawing.

een from the above that for the first two years the
devoted to shop-work, and the afternoons to other
t for the third year the shop-work continues till
the time from five to seven is devoted to other
e amount of shop-work accords with the aim of
make good workmen.

THE ÉCOLE D'APPRENTIS

AT CHALONS-SUR-MARNE, FRANCE.

d famous school well deserves its high reputation,
e best appointed and thorough trade-schools in

Europe. It is literally a school in a large manufacturing establishment, where manual skill and technical knowledge of some special trade is the main object, but supplemented by drawing and such other studies as a skilled mechanic needs. Its aim is to make foremen, constructors, and directors of works, rather than engineers or ordinary workmen. The apprentice-school on Boulevard de la Villette, Paris, is an almost exact model of that at Chalons, but not of so high a grade. The Chalons scheme of studies and shop-work is so similar, that a more detailed statement is unnecessary. Its students are older; the shops have a larger number of foremen to direct the work of the students, and a more complete equipment. In its shop instruction it has in later years conformed more nearly to mechanic art methods, particularly in the earlier part of the course.

THE ROYAL AGRICULTURAL AND FORESTRY ACADEMY

AT HOHENHEIM, WÜRTTEMBERG, GERMANY.

Hohenheim was once a ducal summer palace. It is two hours by post from Stuttgart, about thirteen hundred feet above the sea, and nearly five hundred feet above the valley of Stuttgart. The old palace, with its turrets and pinnacles, its courts and quadrangles, and its once white walls, now gray and hoary with age, all in strong contrast with the emerald green of early spring which surrounded it at the time of my visit, made a picture not soon to fade from the memory. The little hamlet of Hohenheim contained, in 1875, including students, about three hundred inhabitants and thirty families. The palace contains a hundred and twenty rooms for students, besides ample space for all the purposes of the school.

The general studies include the elementary mathematics, with trigonometry and descriptive geometry, physics and chemistry, and the natural sciences which apply in farming, fruit and forest culture, and the raising and training domestic animals. The practical studies include the history and literature of farming, farm productions in general, with special practical instruction relating to the culture of hops, grapes, fruits, and vegetables, the breeding, rearing, diseases, and uses of domestic animals, the production of wool and silk, and bee-culture, farm

nt, with practice in the drawing of plans and specifi-
such management, and farm book-keeping: farming
taught through practice. There is a corresponding
ourse for forestry. The farm contains 971⅜ German
bout 780 of ours, devoted as follows: arable land,
acres; meadows, 161; hop-garden, 4; practice-field,
ractice station with practice-fields, 6; practice-garden
y, 1; rented pieces of ground, 14; exercise-field, 2;
ulture-ground, 17; vegetable garden, 6; botanic gar-
ulberry plantation, ⅜; vineyard, ⅜; constant pasture,
fish-pond, and commons, 51; wild forest-tree planta-
ards and building-space, 17; and cemetery, ⅛ of an
re are, besides, about fifty-five hundred acres of
rest in Hohenheim, in charge of the professor of
hich are available to the students of this department.
tions include models of farm machines and tools,
tural size, forest productions and forest technology,
ts of mineralogy, botany, zoölogy, and physics, the
arts and horse-shoeing, wools, soils, and composts;
of ten thousand volumes; the workshops for brandy
, for beer brewing, for beet-sugar manufacture, with
ces for the preparation of starch, mustard, and vine-
re is also a station for testing seeds, a meteorological
d a silk-reeling station. There is also a manufactory
achinery and tools, employing from thirty to thirty-
wo or three of whom devote themselves to making

a strictly special and practical professional school, and
eoretical and applied instruction is so given as to
he student toward and for his profession, and not
it. While educating the student to a love of na-
not be one of the special aims of the school, it is
conceive that a young man can spend two or three
st susceptible years in such charming relations to
d not become her admirer and devoted servant for
the love of nature is strong in the German character;
more young Germans than Americans, under the
umstances, would voluntarily choose a profession the
f which would be a constant source of gratification
ure.

s also in Hohenheim, under the direction and super-
the Bureau of Agriculture, a

FARM SCHOOL,

the aim of which is to fit young men, especially peasants, b means of suitable practical teaching and practice in the fiel connected with the school, to cultivate in a superior manner the own ground, as well as to train good land-tenants and overseer The head master or principal of the school, besides the gener direction, must give the theoretical instruction, except the do toring of animals. He must be able to give instruction in th simplest operations of land-measuring. In field-work the pupil are in charge of an inspector or field-master, who carefull instructs them in the current farm-work of the season. Th master having charge of all the farm tools and implement teaches the pupils how to use the horses and cattle devoted t farm-work, with their feeding and care. Forgetfulness, wan of care, or cruel treatment of the animals must be brought t the attention of the board of directors. The school is fitted fo twenty-five pupils, the course of instruction being three years In the summer a few special pupils are admitted, who wish t practise some special branch. These must pay three florins pe month for board and instruction. The regular students pay fo board and instruction by their labor. They must furnish thei own clothing, and pay for washing.

Conditions of Admission. — Pupils enter the school in October. Each applicant must be over seventeen years of age, an must bring a certificate from parent or guardian, or his baptismal certificate, and agree to remain three years and do th required work. He must be perfectly well and strong, so as t bear the fatigue of the necessary work, be able to read, write and cipher, and must possess some knowledge of the use o agricultural tools.

The Instruction. — The head master gives four lessons pe week, except during some periods of pressing work. Besides in winter and on rainy days after supper, pupils must work out examples, or occupy themselves with other profitable study But the work is so arranged that the course of in-door instruction can be completed in the three years. The hours of work including instruction and the time devoted to the care of th working cattle, are ten hours per day in spring, summer, an autumn, and seven to eight hours per day in winter. In th summer, during harvest time, if work is pressing, one to tw

y are added. Besides board and tuition, the school
e pupil with a warm room, which he uses as a
study room, a bedroom, and a sick-room when ill,
ordinary drink, light, books, bed, sheets, towels,
oor pupils the Bureau of Agriculture also provides
of a small fund for this purpose.

s are divided into six sections, one for each half-
course. In this way pupils may enter at the begin-
section, and complete the course in the following

Studies. — 1. Climate, with geography; soils, with
o origin, to chemistry, and physics; manuring. 2.
nt-cultivation, with references to botany; working
the use of the implements; seeds and their care;
elementary principles in succession of crops. 3.
ivation of plants; meadows; fruit-trees; grapes;
of ploughed land in particular. 4. General breed-
als, with reference to zoölogy, and the required
l, — cattle, horses, swine, bees. 5. Breeding of
farming profession; the improvement of the prod-
hey, flax, wine, and fruit manufactures. 6. Upon
p and carrying on small farms, and better methods
n; computations relating to income and expenses;
gs and land management.

Studies. — 1. German language (only in the winter
(*a*) for the first class, exercises in easy subjects, as
ping of accounts, bills of lading, bills of exchange,
the second class, keeping of accounts, contracts,
the third class, compositions on agricultural sub-
tatements, etc. 2. Arithmetic: (*a*) for the first
summer and winter half-year), the four rules in
bers and fractions; decimals; proportion; square
l exercises; (*b*) for the second class, profit and
, cube root, etc.; (*c*) for the third class, reduction,
progression. 3. Geometry: (*a*) first class, explana-
lements, lines, angles, plane figures, circles, the three
of objects, drawing, in summer, land-measuring; (*b*)
nd class (winter half-year), the more difficult propo-
ce computation, machine-drawing, in summer level-
l-measuring; (*c*) for the third class (in winter half),
of cubic contents, plan-drawing; in summer, prac-

tice in measuring solids and surfaces, freehand drawing. T
instruction in animal doctoring is given in the three winter ha
years, and divided as follows: 1. Internal and external diseas
with particular reference to the epidemic diseases, and means
prevention. 2. Medicines, simple operations, as bleeding, e
3. Exterior diseases, shoeing, principal wants, etc.

The lectures upon general physics are also divided in t
winter half-years into the three following parts: 1. Simp
rules of mechanics; 2. Heat, light, and explanations of t
relating phenomena; 3. Electricity, with corresponding expl
nations.

PRACTICAL STUDIES.

I. *Field-Work.* — (*a*) Double teams. Pupils of the first ar
second years are taught to work with oxen, and the second an
third year with horses. Pupils in their last half-year hav
charge of certain portions of the work. Common ploughin
harrowing, rolling, etc., are practised to such an extent durin
the three years, that the pupil can answer any demands mac
upon him. Practice in the use of the cultivator, drill-machin
and other implements not given in the first year, is had in th
second and third, under the special instruction of the farm ove
seer. (*b*) Hand-work, manuring. This occupies the pupi
when not busy with the teams, and includes loading and sprea
ing it, especially upon the potato-fields. (*bb*) The sowing
gypsum by pupils of the first year; (*cc*) the sowing of differe
seeds, special study of the soil in connection therewith, in th
second year. In the third year the pupils do the sowing them
selves. (*dd*) Harvesting (reaping, mowing, binding, etc.)
done by the students and such day-laborers as are needed. (*ee*
The second and third year pupils are taught the rotting of fla
and hemp.

II. *Work on Meadow-Land.* — (*a*) laying out of ditches; (*b*
irrigation; (*c*) work on drainage, the laying out of sewers an
drains; (*d*) facing the water-banks; (*e*) work at hay and ha
vesting. In all this work the pupils take part, those of th
third year usually acting as overseers.

III. *Fruit-Tree Culture* is taught by lectures and inspectio
but the work is done by the pupils of the gardening and pom
logical school.

IV. *Work in the Hop-Garden* is done by the pupils of the fir
and second year, mainly under the direction of those of th
third.

'ork. — The threshing and cleaning of the various
e by the pupils when there is no other work on

g the Soil in Orchards is given to the pupils in
ird-year pupils have practice in measuring and

with Cattle. — (*a*) Feeding oxen in summer, in
ilking cows; (*c*) care and rearing of calves; (*d*)
ning cattle. The pupils of the first and second
work *a b c* in turn. The weighing of fattened
by the older students.
ortunity is given the pupils to become acquainted
of bees.
facture of Agricultural Tools. — Pupils who are
desire it, can spend some time in winter in the
n Hohenheim.
s Work. — In general, the work of greasing the
making small repairs, is done by the upper ser-
e pupils must also learn from time to time how to
The third-year pupils have charge of the har-
der the general oversight of the overseer. Pupils
t how to make straw-rope.
n full details in regard to this school, because I
re are classes in our own country to be educated,
h a school is particularly adapted. If I do not
interested in the Indian problem will find this
pecial value.
ore example which interested me very much, and
ne time find an application in our own country, I

IOLOGICAL AND HORTICULTURAL SCHOOL

IN REUTLINGEN, WÜRTTEMBERG.

was founded in 1860 by Dr. Edward Lucas, for-
Garden Inspector and Director of the Horticul-
Hohenheim. Up to 1880 it had educated over
pupils, many of whom occupy important positions,
ally aiding in elevating the science and practice

of pomology and horticulture in Germany. The sole aim of the school is to advance these sciences, and educate specialists. The buildings, besides apartments for four families, accommodate forty-five pupils.

The school-grounds comprise, in all, sixteen hectares, — nine in Reutlingen, and seven in Unter-Lennigen, — where there is a branch department of lower grade for poorer pupils, who study, mainly, hop, grapevine, and meadow culture. It will not be necessary to go into any detail in regard to studies, or division of time between theory and practice. It will be suffcient to note that the hours for instruction are in summer from five to seven, and in winter from six to eight, mornings, from eleven to twelve, noon, and from six to seven, evenings; the remainder of the time being devoted to out-door practice. The younger students, who are studying horticulture, usually work one hour per day more than students in the higher departments. In the three-years course in fruit and garden culture, the entire cost to each student is five hundred and thirty marks for the first year, four hundred and ten for the second, and three hundred for the third; in the second and third years an allowance being made for labor. In the higher three-years course in pomology and garden construction, the entire cost for the first year is six hundred marks; in the second, five hundred; and in the third, four hundred; allowance being made for labor as above.

THE POMOLOGICAL AND HORTICULTURAL SCHOOL IN REUTLINGEN, GERMANY.

This is a school of higher grade than the farm-school in Hohenheim, but so similar in all the details of management, that any further description is unnecessary.

y of the system of apprenticeship has raised the
y skilled labor is to be provided in the future. This
ow agitating all countries having any industries to
end. In our own country the more extended and
f machinery has caused the more rapid decay of the
if we except, perhaps, England, no country stands
ch urgent need of a remedy or substitute. In the
n our own country, when our system of public
s still in its infancy, mental and manual education
more intimately connected than at the present day.
ies of the country were still in a crude state;
and a few only of the more necessary mechanic
g any existence. These trades demanded but little
e, and not the highest manual skill. The master
onsible, in an important sense, for the mental and
eing of the apprentice, besides teaching him the
is trade, with such knowledge of the theory and
nce as he was able to impart. By his attendance,
four months of each year during his apprenticeship,
strict school, the mental culture of the apprentice
rely discontinued; and thus, by alternating between
d the shop, his mental and manual education were
ly divorced, but each in an important sense aided

assed, a more marked separation between mental
education began to take place. The schools gradu-
d. Better methods of teaching and a larger num-
cts were introduced, and a higher standard set, all
more time from the pupil. But quite as marked a
going on in the industries. Increased demand led
on, to the invention of special tools to cheapen pro-
a greater subdivision of labor, and to the concen-
e individual upon a very narrow range of work.
pprenticeship system for learning a trade in its old
rm has passed away, never to return. As it exists
n advantage to neither party. The apprentice can
narrow specialty, so narrow, as a rule, that its only
is the meagre pittance which he can earn from day
at the sacrifice of any further educational advan-
the master finds it for his interest to pay for the
s, rather than put into his carefully adjusted chain

of operations a weak and nearly useless link. In this way the school and the shop have become so widely separated, that they are no longer mutual helps, as in past times, in developing the highest capacity or the highest manhood. The student who enters the shop at fifteen for a three or four years' apprenticeship seldom returns to the school; and, on the other hand, the student who completes his high-school course at eighteen seldom willingly enters the shop as an apprentice, with the intention of becoming a skilled mechanic, and earning a livelihood by manual labor. His twelve or fourteen years of mental school-work, whether highly successful or not, have, through habit, if in no other way, unfitted him for all manual work, even if he has not in many ways been taught to despise such labor.

In England, says Professor Silvanus P. Thompson, in "Contemporary Review" for September, 1880, —

> "Time was when, for the most part, the skilled artisan who was the master of his trade worked at home in his own house, assisted, it might be, by a few younger workmen or journeymen. Into his house and family he would receive one or two young lads to learn, during a seven-years' engagement, the art and mystery of his craft; the master himself working and teaching them his work, feeding and clothing them, and receiving from them in return the value of the services which, as they became more apt in their work, they were able to render. The advantages of thorough training by the continuous care of the master were unquestionably proven by the universal adoption of the system. The ancient guilds grew and acquired their legal status upon this usage as their very foundation, and a seven-years' apprenticeship formed the one necessary qualification for the possession of the right to exercise the following of any occupation or employment, art or craft, recognized among the handicrafts of the time. With the extension of trade and the wider use of machinery the number and power of the adult employed workmen increased, and with their increase of power came a jealousy, on the one hand, toward the masters; and, on the other, toward the apprentices, who were regarded as cheapening labor when employed in too great numbers. The conflict which arose between employer and employed gradually merged into one between capital and labor. By dint of strikes the workmen at last prevailed, and, in attempting to bring about a limitation in the amount of apprenticeship labor, brought about a result of quite another kind, and one far more disastrous than the evil sought to be remedied, — the destruction of all the best and most important features of apprenticeship."

On the Continent the same changes, though less rapidly, are taking place. There is less concentration, and the various trades are still largely in the hands of individuals and families,

down to sons or others to whom they have been
gh the old system of apprenticeship. In Germany
echanic, in many instances, still finishes his educa-
or three years of *journeymanship*, which enables
further knowledge and experience in his trade, and
ıg of the world before settling down to his life's
the change is gradually taking place in all coun-
l are preparing to meet it through some form of
England, as is well known, has, during the past
years, by the introduction of a general system of
education, including drawing, and through special
hools and museums, revolutionized many of her
rticularly those involving artistic taste in design as
lence in manufacture.

actical education in the mechanic arts, so far as
nothing has been done in England. In this direc-
has long taken the lead, and has in the last few
ned anew to the importance of the subject. The
of the mechanic art method of teaching, and the
ich this method is having in modifying the details
n in the various trade-schools, constitutes a new
cal education in France.

understood that Germany still produces skilled
specially wood and metal workers, many of whom
y to England and this country. But this is not
troduction of any system of manual education in
n. When the older polytechnic schools, such as
rlsruhe and Stuttgart, were established, shop in-
nstituted a part of their educational scheme; but
nto disuse for want of some plan by which alone
l have been made possible; and the result is that
of all the German polytechnic schools is opposed to
on by any method. Even the trade-school at Augs-
ranked for many years with that at Chalons-sur-
ance, both in its methods and aims, has for some
discontinued. But apprenticeship still prevails, in
ith a thorough public education in schools more or
to the needs of classes of students. Drawing and
of the sciences are taught to a large extent in
uses in industrial pursuits; various special schools
e education of artisans, such as the excellent

Gewerbe-Schule of Stuttgart; but the manual skill must gained in the practice of the trade, and not in the school.

Austria is quite as rapidly, if not more so than any o country, substituting systematic mechanic art instruction place of the old apprenticeship system; and, if she shall adh to her present course, it is not difficult to foresee that in a years she will rank among the leading industrial countrie Europe.

In the foregoing I have included such schools as seem to teach a special lesson in regard to the introduction of manual element as part of a system of education. In addi to the remarks already made in connection with each, I simply to say in conclusion, that with but few pupils, so that each can receive special instruction, a lack of system any system, may not be entirely fatal to some degree of succ any more than it would be to teach general, qualitative, quantitative chemistry in the same laboratory; but no would expect to get the best results. For large classes, on other hand, special shops arranged for class-teaching bec imperative. In the next place it is pretty generally admi that, if only a general mechanic art training is desired, shops arranged with this end in view are better than any ma facturing shops can be, whether considered on educationa economic grounds. Again, even in schools where manu turing shops are part of the apparatus of instruction, it is coming more apparent that a certain amount of preliminar mechanic art training is necessary in order that the double of the shops, instruction and manufacturing, may both with reasonable success. While there may be special reas such as the expectations of the public, or the belief that valuable teaching can be done except through manufactur why this department of instruction should demand gre opportunities for application in the school than other subj or departments of engineering, I am persuaded that the m facturing element will gradually diminish even in schools w it already exists, both on the grounds of economy, and bec a mechanic art training will in general be found to better pare the student to choose wisely, besides opening to hi broader career for the future.

We sometimes see a formal argument made to prove the o ous proposition that an educated man makes a better mecha

ducated one; and it is hence inferred that our pub-
stem, in many ways so admirable, and the result of
rs of labor and experience, is all that can be desired,
suggestion of a modification which may the better
ie future needs of the large proportion whose educa-
ed even in the grammar schools, is in the nature of
on the system. But this is by no means the case.
of the education may be of the very best; and yet
may be asked, whether an education based mainly
tic studies, with so much drawing and science as
ow, is the best course for the largest number of
s sometimes thought that the reason why so many
high schools seek positions as clerks, book-keepers,
ght forms of labor, is because these positions are
re genteel than pursuits involving manual labor.
true to some extent; but I apprehend that quite
the graduate asks himself, What can I do? what
ation fitted me to do? There is but one answer,
accordingly as he ought; for, even if he wished to
trade or industrial pursuit needing special techni-
ge, he may not be able to devote the time and
sary even if the conditions of apprenticeship were
Suppose now that the same student had the oppor-
g his school course, say till eighteen years of age,
gh a well-arranged series of mechanic art shops
etent instructors: what are the chances that upon
ie would not enter upon that pursuit for which he
best fitted, and which held out the best prospects,
the pressing present, but for the future? That a
education forms habits as well as tastes, is obvious;
reasonable to expect that pupils educated almost
through one set of closely allied subjects should
iality for pursuits with which these subjects have
st remote, if any, connection.

boys and girls are not peculiar in this respect. The
cy is noted and complained of abroad, when, in fact,
be expected. What, then, is to be done? Will any
of educating the hands and head together answer?
manufacturing establishments would take young
ey leave school, and educate them in the quickest
y. But this we are not to expect so long as it is

hardly more for their interest to take them into the shop an teach them handicraft, than into the drawing-room to teac them drawing. In short, the time has come when if a youn man wishes to follow a certain course he must so far quali himself as to be of use to his employer, and thus to himsel and, as the State cannot afford not to educate its children, cannot afford not to so educate them as to make them the mo serviceable to the State as producers and citizens.

But how can this be done at the least expense, and with th least change in our present public-school system? Obviousl by utilizing our present educational facilities to the fulle extent, and not by pulling down in the hopes of building something better upon the ruins. It is also obvious that cities nee this change more than the country, where almost every child daily accustomed to some kind of manual labor on the farm o in the shop.

In the city two courses are open,—either to build up an independent mechanic art school, or to attach a series of shops o laboratories to the high school. If the intention is to specia ize this education, then an independent mechanic art schoo would best accomplish the purpose, and at the same time mos probably more or less injure the high school by drawing awa some of its pupils. If, on the other hand, it is thought that proper manual element should enter into the education of al then the shops would be attached to the high school, and serv to strengthen it by attracting students who now do not see an gain in the high-school course unless they have the college o some other particular end in view. Admitting that two thre hour lessons per week for the four years would be as muc time as would be needed for shop instruction, then a series o eight shops arranged to teach twenty-five in a section woul accommodate twelve hundred pupils. It is plain that onl the laboratory method would make it possible to teach thi large number of pupils, and one such series of shops would b ample for a good-sized city.

JOHN D. RUNKLE

INSTITUTE OF TECHNOLOGY,
BOSTON, Feb. 13, 1882.

B.

PORT OF GEORGE A. WALTON,

THE BOARD; INCLUDING A REPORT OF INSPEC-
ION OF SCHOOLS IN BRISTOL COUNTY.

6

REPORT.

Board of Education, — My work during the past
n, as heretofore, of a miscellaneous character. It
d, (1) of visits to the towns, to confer with school
to address the people and teachers, to inspect the
to arrange for teachers' institutes; (2) of attend-
onventions of teachers and school officers, to assist
iberations; (3) of attendance upon teachers' insti-
strate methods of teaching. In several instances
of an agent of the Board has been requested to
differences of opinion have arisen between com-
people; such service has been most cheerfully ren-
ave delivered during the past year fewer public
an during any previous year since my appointment
the Board; less time also has been spent in actual
the schools; a larger proportion of the time spent
ls has been given to inspection. Of the nature of
n, something will be said farther on.
e number of the smaller districts, and in some
unities, it is true, improved methods of teaching
pposition from the prejudices of the people; but
may be assumed that the people demand methods
of what are practised, as well as results above
hools afford: the stimulation of the teachers and
is, therefore, a special need of the present time.
s' and committees' associations present the best
doing this needful work. I have been present at
associations held during the year, and in most have
part. It is interesting to note from year to year
in the matter and methods of these meetings.
peful signs of this progress in the teachers' associa-

tions are the part taken by the teachers of largest experie the thoughtful care with which they prepare for the exerci and especially the interest commonly felt in the discussio the philosophy of education.

The associations of school committees have existed for bu brief period of time; but they have entered in a most vigor manner into the discussion of topics of vital interest to schools. Good types of the meetings of these associations w the last two held by the Association of Southern Worces which includes the towns of the Blackstone Valley south the city of Worcester. Reference is made to the very las the report on the teachers' institutes, found in the report of Secretary of the Board.

TEACHERS' INSTITUTES.

A full report of the teachers' institutes also will be found the report of the Secretary. Of these there have been h during the year twenty-one. I assisted in the instruction conduct of all, and arranged for one-half of them. At no ti within my knowledge of the institutes have they been bet adapted to effect the teaching of the schools, and at no ti have they been more fully appreciated. They have been rected to a few specific ends, the principal of which are illustration of methods of teaching, and the inculcation of sc principles upon which all teaching depends; the several tea ers, all directing their lessons to these ends, have given grea unity, and so greater effectiveness, to the institute instruct as a whole. In the modified form of the past few years, institute work has an indefinite field of usefulness in the futu

INSPECTION.

In the inspection of the schools, my special field during past year was the schools in Bristol County. While this my special field, calls outside the county have so far engros my time that I have been unable to visit all or even a majo of the schools. I have within a recent period, however, visi a portion of them, in each of seventeen out of the ninet cities and towns in the county: the two that remain are to that may be classed with those upon which I shall herea report.

Late in the winter, a plan of inspection for both Mr. Hubb

was agreed upon; this we were to apply with such
s as we deemed wise, each in our respective fields
. The plan embraced the following particulars:—
ol-buildings, including site and grounds; size of
ing, heating, and ventilation; furniture; and out-
cluding location, construction, drainage, and use.
es, including course of studies (branches); means
as apparatus, libraries, and reference-books.
lts, including reading, silent and oral; alphabet,
tary sounds; spelling, oral and written; language;
numbers and arithmetic, etc.
hers and teaching; methods of teaching; physical
oral instruction.

ls which were visited before this plan was adopted
part of those in eight of the cities and towns.
ese were made not only for the purpose of inspec-
o for the purpose of teaching in the schools, and
he teachers and people.

County there are three cities that have all the facil-
ing good schools: the population is large and com-
uation is high, a large percentage of the teachers
ofessional training or considerable experience, and
s a salaried superintendent who devotes his entire
upervision of the schools. With these cities may
vo towns that rank next in wealth and population:
hampered by the district system; otherwise these
ave excellent means for having the best schools.
ese cities and towns, the remaining fourteen towns
y be classed together for a comparison of results.
inspection above referred to was applied in the
even of these towns. The tests in examination
ally alike, and the entire inspection was made with
the same particulars.

SCHOOLHOUSES.

he schoolhouses in Bristol County appear to have
nce the time of Horace Mann. In architecture and
they generally express the severe economy which
es characterized all our public buildings; now, as
s, in many instances a necessity. These modern
e of ample size, of good proportions, and are gen-

erally neat and commodious buildings. Some display consi able taste, and are a credit alike to the neighborhood and to advancing spirit of the age.

We still meet, however, in these towns with some stern r of an ungarnished age, in the houses of a hundred years built where and as they now stand, flush with the road, u lots too scant to admit, without trespass, of a wood-shed other out-building.

Location and Surroundings.—New schoolhouses are gene located at or near the centre of the school population; ex in some notable instances of change in the population, visited during the past year appear to be well situated accommodate the pupils. In some cases the sites of the ho are unfortunate from their surroundings: they are in bl exposed, or in low and damp places. To avoid swampy exh tions, stagnating pools, cold, springy soils, to secure a suit exposure to sunlight and pure air, a few rods of travel would an inconsiderable sacrifice. In some districts every thing seems to have been sacrificed to a central location.

After the house is built, the care of the district or t too often ceases; the grading and surroundings are, in country towns, left to time and the elements. I recall few school-sites which present outward attractions to com with the least-adorned of private dwellings in the same loca Why should not trees and shrubs surround these nurserie culture and refinement? Every thing that adorns, also c vates and refines.

The Schoolroom.—If we enter the schoolroom we shall that the same plainness characterizes that, as marks the out of the building. Most rooms present a tidy appearance, there is little to captivate the sense or satisfy the taste. V dows are uncurtained, walls unhung with paper, or pictu or adornments of any kind. Some rooms have all that g taste can demand in the way of finish. In a few are pa hangings or painted walls; house-plants grace the windo mottoes, and other ornamental devices, other parts of the ro

Most of the schoolhouses have but a single room. Man them were built when, for some cause, the population greater, families were larger. The rooms are consequentl ample size; they frequently have space for two or three ti the present number of pupils. Yet within the year I h schoolrooms, not all in Bristol County, whose space oes not in either case reach one hundred and thirty scarcely one-half the amount required for health. I y an hour with thirty-eight children and a teacher, s in all, in a recitation-room which measured twenty-teen feet, and ten feet in height, — ninety-five cubic ch person. Compare what I suffered in one brief unventilated room, with what the children are sub-ho are confined to this room for alternate hours of chool day, from week to week, and what less can you at here is "cruelty to young children," in compen-hich the learning they get is of slight importance? e cruelty to these, it must be worse than cruelty to teacher to subject her to such conditions for the l year.

and Heating. — The lighting of most of the country s is upon three sides, and so is abundant; care in is not often taken to shade the windows directly in ils or teacher.

ing in most is by stoves, and usually is also abun-of the stoves, however, are placed directly between the teacher and his pupils, thus exposing him and them to undue heat, and as the stove is often quite mes a serious annoyance to the teacher in overlook-ool. In such cases the stove or the teacher's desk emoved to one corner of the room.

thy of note that many of the schoolrooms in this State have the stove in an anteroom, which may d from the main room by a sliding gate extend-he floor to the ceiling. This room is reached by the side entries, and is made accessible to the reaching the school in the morning, and at the noon . The heat is freely admitted to the schoolroom slats of the gate, while the children are confined absence of the teacher to this anteroom. The of this device are as obvious as the device is simple us.

n. — In some of the schoolhouses, the cracks and ake ample provision for ventilation. In most, the entilation is through open doors and windows, or acks and pores in the building material. Where ventilating flues exist, either from faulty construction, or from want of skill in their use, they prove generally ineffective. So the problem of ventilation even for the country schoolhouse is yet unsolved.

Furniture. — The seats and desks of most of the schools are of the modern patterns; to a great extent they are properly adjusted to the occupants; the tendency in seating is to graduate the seats by the pupil's rank in scholarship rather than by his ability to reach the desk or touch the floor. In one school I found foot-rests provided for the smaller pupils. Much would be gained in many schools if single desks could supplant the double desk now in such general use. The same result is virtually attained in schools having but half the seats occupied, the teacher in such cases giving to each pupil the whole of the double desk. To give to the desk the necessary width for writing, in the primary schools of one of the cities, the top of the grammar-school desk was used with the standard of the primary-school desk.

The blackboard may be reckoned a part of the furniture of the schoolroom; its extent, its quality, its location, all indicate the measure of intelligence on school matters, of building committees. I have found no room in Bristol County without a blackboard of some kind; many are deficient in quantity, more have boards of poor quality, and in a large number the boards are not properly located. For the special use of the teacher in teaching, there should be a good blackboard at a point accessible to the teacher, and in sight of every pupil in the room. In this particular, my note-book indicates deficiency in a large number of schoolrooms in the county.

The common crayon is now so very cheap that chalk in the lump is no longer found in any schoolhouse visited in this part of the State. The same, however, cannot be said of the eraser for cleaning the boards, and of the index for pointing. The latter is quite often wanting, while for the former I am sometimes served with a dusty cloth, or even with a piece of paper. The schools of the entire town in some instances are without clocks, and in most without thermometers. Such articles of furniture as have been specified above are essentials in the outfit of the schoolroom. How some of these may be supplied, will be suggested under the head of Apparatus.

Out-buildings. — The out-buildings connected with the school-serve a separate paragraph. In connection with ne-half the schools, where is enjoined upon the youth the teaching of all the virtues which adorn r, filth and impurity in one building neutralize ade to commend the virtues in the other. And, the abuse of these buildings seem worse, in quite instances noted, but one building is provided for d girls.

is the contrast in the moral obligation felt by more evident than in the care or neglect of these While so many are a shame and disgrace to decent rs are kept in perfect order, have all the cleanliness ructures at our homes. That decency and purity nnection with some, shows that they may in all.

not seem a necessity in rural districts that the hould be enclosed with a fence; but the demand clusion in the use of the out-buildings, in mixed all ours are such), makes it desirable that the yard some way properly screened. In one town having number of schools, every school-yard was enclosed, d by a division fence, and generally the out-buildreened.

ave now said relates to the moral bearing of the s. They hold an important relation to the sanitary the schools; many of these buildings, even where so situated or abused as to be unfit for use, can orm, rain, and cold only by exposure to inclement d in the warm season there is often danger from d poisonous odors. There is every reason to bephtheria and typhoid fever, the former of which is nic among our school-children, result from bad air, netimes for hours they are exposed.

STUDIES AND RESULTS.

es to which I have directed special attention in the of the schools are reading, writing, geography, and with all that these branches now generally include, as nposition, penmanship, etc. In most of the schools and children determine the order of topics for study anches, and, in general, the whole plan of study. e change in teachers is a constant factor, the course of studies is a variable and indeterminate quantity. In one of the towns have I found a course of studies any thing as explicit as is found in all the cities.

Reading.— In many of the schools the pupils' reading from lessons they had previously read. In general they also from books which I furnished; the pieces being of a l grade, usually, than those in which they were accustome read. Considering the large amount of time given to rea the results are not all that ought to be obtained; and y this branch the pupils rank higher than in some others.

In oral reading the defects in mechanical execution w want of good position of body and book, bad articulation, a of fluency, and especially of force. The most general excell was the attention given to correct pronunciation. The e in expression were a want of proper modulation of the v and power to awaken thoughts and feelings in the min others.

The principal means for forming a judgment of the al of the pupils to read silently was their reading, off-han a piece they had not before read. In many of the sc the pupils were fully taxed, merely to call the words, and was often done with great hesitation: the sentences did appear to awaken thoughts in the minds of the pupils. some pupils and classes the sentences evidently occasi thoughts before they were uttered: this clearly showed the pupils had the ability to read silently. The schools had had considerable supplementary reading, generally with ease and intelligence.

In all grades the pupils, with rare exceptions, are attemp to read matter beyond their comprehension. In one t with the exception of a single class, this was a universal f By the common method of teaching, the mind is not dire to the thought: the exercise consists almost wholly in ca words. When the pupils have learned to call these in school-reader they are given a higher; and so in many of schools, though low in other branches, they are nearly all r ing in the higher grades of readers.

Language.— Several different exercises were employed to the pupils in the use of language, written and oral. Of the tests, one consisted in questioning the pupils upon some le they had prepared to read, or had just read; another consi the pupils tell in their own language a story contained ading-book, or in naming and describing objects or presented in a picture. The results were various. ses, and one or two pupils in many classes, used lan- ently, and with accuracy; but the larger number h difficulty, and, while they gave respectful attention rcise, were reserved in their manner, and apparently heir thoughts without deriving pleasure from the

ts for written language were of several kinds: they he last of the above, the pupils writing instead of One consisted in writing, in their own language, a memory, after having read it over carefully; another in describing, in writing, a simple act which I per- the presence of the pupils. The exercises were dic- fferent grades of pupils; they were performed with grees of success by different schools, and by different he same school. The story referred to was written er grade of pupils.

testing them in silent reading, this exercise showed s of thought and expression, their neatness in arran- penmanship, spelling, syllabication, use of capitals, of punctuation. In thought and arrangement, but ls, as a whole, could be considered good, while of vidual pupils they were excellent. Most erred in al construction, all had some errors in spelling, many of capitals and punctuation; but few used quotation- h the quotation which occurred in the story. There y words divided at the ends of lines in disregard ation.

xercise, written in a neat hand by a girl of thirteen pital was used at the commencement of every line; nearly every word was commenced in the same way. also, to imaginary persons, were written in some of s, and with results similar to those stated above. creditable character of an occasional exercise indi- practice, and specially good teaching.

ot tabulated the results of either of the above exer- elow are given the percentages obtained from two ipils who wrote the following from

Dictation.

Where did your cousins buy their new cloaks? At Mr. Smith's, I thi
and they buy their sugar there too.

There were ten chances for errors in spelling, and fi
each in capitals and punctuation. The exercise was writt
upon papers by all classes from Third Reader grade upward
the highest in the schools, all but two pupils being over ni
years of age. The two classes of pupils were formed by placi
together all the papers written by pupils from nine to twel
years of age for the younger, and all written by pupils abo
twelve years of age for the older. The average age of t
younger class is ten and one-half years, of the older thirte
and one-half years.

Though the results do not actually include the work of a
the schools or of all the class of towns under consideration, the
include a number sufficient to be taken as fairly representin
the average. The following are the results in general, and
the particulars of spelling, capitals, and punctuation: —

	Spelling.	Capitals.	Punctuation.	Total Aver'ge.
Taking all the schools, the percentage of correct answers was as follows: —				
For older class (average age, 13½ years) . . .	65	68	32	
For younger class (average age, 10½ years) . . .	52	52	16	
Both classes (average age, 12¼ years)	58	60	24	
Total				4
Taking all the schools of any town, the highest percentage correct was, —				
For older class	75	84	58	
For younger class	70	71	23	
The lowest percentage correct was, —				
For older class	54	51	18	
For younger class	34	42	4	
Taking any single school, including both classes, the highest percentage correct was	76	95	60	
The lowest percentage correct was	24	40	3	

The results of this exercise in particulars show that the pupi
do not learn to spell by writing the words they will want to u

that they have a limited knowledge of the use of
s; and that most are extremely negligent, if not
ined, in the use of marks of punctuation.
– Of the spelling it may be said that it would
etter had the words been spelt orally. This seems
faction, since no demand is made upon anybody
ds in this way. Full half the errors were made
e words *where*, *buy*, *their*, *there*, and *too*. And these
ds are those which the teacher does not think to
ral spelling, especially to older pupils. A word in
e case is seldom assigned to be spelt orally; yet
inety per cent of all the pupils failed in the spelling
" in the above sentence. Far too much attention
oral, and far too little to written, spelling, in all
e schools.
e of the teacher, which was required to be written
per, was often misspelt. One pupil eleven years old,
er showed, a "grammer scool," wrote: "Whair did
by thary new clower to mister smiths I think and
hair suger thair to." The twelve pupils in one
the word "grammar" in six different ways: four,
" three, "grammer;" two, "gramer;" and one
mar," "gramma," and "grama."
– In the use of capitals, since the exercise was so
mmenced with a capital, especially by the older class,
e that the second sentence would also have been,
ll punctuation was so generally omitted. Many
and younger, wrote "mister," some "misster," for
the most striking error, and it was very common,
of a small *i* for the pronoun "*I*."
on. — The largest percentage of errors, however, was
uation of the exercise. The commas needed to set
" were used by only one in fifty of the pupils; these
ceptional ones, whose papers otherwise indicated
ing. The omission of the interrogation-point was
many schools; so was that of the period in the
"Mr." The only mark which would lead one to
y attention is given to punctuation in a majority of
was the period at the end of the exercise. About
ils had this. In very few indeed was the punctua-
correct: in many there was none whatever.

From the general result the inference must be that the pup have but little practice in sentence-writing. The appearance the papers indicates that in no school visited is there enou of this work done, that in but few is it a regular and freque exercise, and that in nearly all it is only an occasional a formal one, and then is rarely or never attempted with pup below the Third Reader grade.

To some extent language-lessons are taking the place of t drill in grammar formerly attempted with young pupils. few schools that I observed has it yet resulted in the famili and easy use of good English, which all our children ought be taught certainly before the study of grammar is begun.

Penmanship. — The penmanship in the schools visited has, general, one excellence, — the writing can be read; the oth requisites of a good handwriting are wanting. There are ve carefully written, and neatly kept, writing-books. I was show some finely executed specimens in some schools. The practi is much too largely confined to the copy-books and these fi specimens; there are few easy writers. In some of the schoo where the copy-books were very fair, the pupils spent ten fifteen minutes in writing upon the papers their name and ag with the names of the town and teacher. In but few schoo did even the older pupils combine elegance with despatch their written exercises.

The children are not much habituated to writing till the reach their ninth year. The first three or four years, perha the most important years for learning the forms of letters, a thus, so far as this branch of study is concerned, thrown awa In several schools there were children eight or nine years o who could not write their own names.

With the increased practice now had by many of the class in written exercises, we may hope for more practical results the future.

Geography. — The following is the list of exercises prepare as tests in geography: —

1. Draw a map of Massachusetts, locate and name four principal rive (not branches). Locate Boston, Springfield, New Bedford, Nantucket, a your own town. Indicate with a cross the place of the highest land in t State.

2. Name three leading industrial pursuits of the State of Massachusett giving first that which you think produces the most wealth.

the United States can we obtain coal ? iron ? copper ? gold ?

ree large gulfs or bays on the coast of the United States, and nportant river that flows into it.

e zone through which the equator passes, and give its width

e highest mountains in Europe; also three rivers that rise in and tell into what body of water each river flows.

he teachers, on seeing the questions, doubted the
eir pupils to answer creditably these questions; in
s the time spent in most schools was too short to
ll the studies, the arithmetic or language work was
d.

ination in geography was taken by the grammar
ools of several towns, and by classes of grammar
umber of mixed schools. The highest rank of any
ifty-four per cent. The comparatively poor results
they seem — can be accounted for in part by the
t few of the schools ever, and most never, have
rcises in geography. Probably this was the first
ind ever applied to many of the pupils; again, in
ls map-drawing is not a common exercise: in one
r towns I found no one in which it was practised.
the map of Massachusetts drawn with a fair degree
: in general it had a rectangular form, but in some
e shorter dimensions were from east to west. The
the second, third, and fourth exercises were quite
The greatest inaccuracies occurred in answering
fifth.

ts indicate a want of accurate knowledge of geog-
he absence of the best methods of acquiring the
In a few schools the recitations were topical, and
rawn by the pupils for the purpose of recitation.
he lower grades did I find any systematic instruc-
, position, distance, direction, etc., which are pre-
he study of geography.

. — The arithmetic was assigned to pupils of two
those from nine to twelve years old, which consti-
unger class; and to those twelve years old and up-
h constituted the older class. The average age of
was ten and one-half years, and of the older four-
-half years.

The tests submitted to the younger class were an example column addition, consisting of eight items, each having thr orders of units, some simple combinations, as 9 and 8, 35 less etc., also the following problem:—

A boy spent 9 cents for a whistle, 8 cents for a top, and then had mor enough left to buy 2 bunches of fire-crackers at 4 cents a bunch: how mu money had he at first?

For these young pupils the exercises were dictated, and th written upon the board, so that every opportunity was given f writing the numbers correctly. Taking all the classes, the pe centages of correct answers ranged from sixteen to eighty-fou The results, even the poorest, did not surprise me: they migl those who have not applied similar tests. Something is to l allowed for the form in which the pupils are required t express their knowledge: these tests required them to expre it in writing; the results in combinations would have been co siderably higher if the answers had been oral. Of course th column addition was in the customary form, and in this th rank was low. In this, as in other branches, the pupils did no readily take the sense of what was dictated. The teachin of arithmetic in this grade is not sufficiently directed to thing required for the higher grades of work, and for practical life.

The list of problems submitted to the older pupils was a follows:—

1. Find the average age of twelve persons whose ages are as follows:—

9 years	3 months.	16 years	7 months.
10 "	9 "	7 "	11 "
14 "	7 "	18 "	8 "
19 "	2 "	17 "	6 "
16 "	8 "	8 "	9 "
17 "	8 "	10 "	6 "

2. If it requires 804 men working 12 days to build a road, how many me would it require working 9 days to do the same?

3. How many cups of coffee, each containing $\frac{2}{3}$ of a gill, in one gallon o coffee?

4. What interest should be paid on a note of $287.50 from May 15 t the 9th of the following June, the rate being 5 %?

5. How many inches on both sides of a slate 1 foot long and 6 inche wide?

6 Find the cost at 90 cents per square yard of a concrete walk on th front and side of a corner lot of land, the front of the lot being 8 rods lon and the side 10 rods, the walk being outside of these measurements and feet wide.

problems were presented to each of the pupils upon ı the form above given.

ercentages of correct answers in this grade, the average g fourteen and one-half years, ranged from zero to en. On the whole the percentages were low. In ic, as in geography, reasons exist why this result might cted. The pupils are not often tested with "written tions," nor frequently with any: hence they do not nterpret the language of new problems. For example, schools there were some who did not know what was y "average age" in the first problem. After the ex- ı was given, the majority of the pupils obtained the nswer. What was meant by "both sides" of the slate fth problem, could not have been understood, since answers were correct, and a large number gave for er thirty-six inches. The analysis of problems is not enough to be practically applied. The second problem hout exception, I think, done by proportion; the an- the third problem showed that a large number of ıltiplied by two-thirds instead of dividing. The pro- ed were mechanical; thus, in the fourth problem, in he time "from May 15 to the 9th of the following early every pupil put down: —

MO.	DA.
6	9
5	15;

year also, and then found the difference of time by d subtraction; all who did this obtained twenty-four the time; and all except five or six pupils, and these hool, found the time in that way. Several put down l some other year, as 1880, and obtained an additional he very few who were careful to make a diagram for ı problem were almost the only ones who obtained a nswer. I do not know how wide is the range of to this problem; I noticed one was $19,602.06, another 32.20. The latter was given by a pupil who had ive per cent of his answers correct.

he schools (no exceptions were noted) there is too much ıce upon the book, and too little practice upon problems from other sources. The moment the pupils are set to outside of the book, or to make a problem from data of their own, they are adrift. In almost all they depend upon c another; in several schools the comparison of answers amc the pupils was so universal as greatly to interrupt the work, a as entirely to vitiate the results. Were more practice giv upon problems outside the book, and good habits establish among the pupils, much better results could in a short time secured. Where independence among the pupils was observ there the best results were obtained.

General Conclusions.

The schools in their present condition justify the fullest c fidence; what they demand is greater vigilance in their sup vision. No one test, or form of examination, will reveal th real work. None but the most intimate relations with the and with the teachers, can discover their true merits. B with all that can be claimed for them, it would be unwise, a it would be untrue, to assert that they have not many defec The few simple tests which were applied show that in t amount of knowledge, and in mental discipline, the rank of t pupils is far too low. To admit the defects, and try to po out the causes, may be a step towards finding a remedy.

Teachers. — First, the teachers employed are largely witho either professional training or experience; fewer than one seven being normal graduates, while some are very you wholly untrained, and now for the first time "trying th hand" at teaching. Of the latter class, I found a bright girl sixteen, in charge of an important primary school; the sch was well kept, but little was taught. With her marked abili and the training of a normal school, this young person wou at once become an excellent teacher: now the poor children a being sacrificed, that she may get her poor experience. Th the results are so good as they are, shows that the persons e ployed to teach have tact and ability, or that the tests appli are too simple.

Again, a serious evil is the frequent change of teachers: f one-third of the teachers were keeping their first term in t particular school in which I found them; a large number h been too short a time in the school to be responsible for results. It would seem that the policy of some towns is change for the sake of the change. Indeed, one school-comm tee man enunciated his doctrine of the tenure of office, by sayi

eacher should float out at high tide. If he had said
ead of *should*, the proposition would be generally true.
he doctrine prevails or not in our towns, the changes
nt, and attended with most disastrous consequences
ools.

. — Under such a system of employing teachers, there
and there is not, much teaching. Little is done in
schools to occasion the right activity in the mind of
In his hand is placed a book, which he pores over
commit. The book is a collection of words that are
of nothing he has known or can conceive. Among
ingless signs he is sometimes left to grope till the
ltification.

ustration of the traditional modes of teaching which
the method of teaching reading by first teaching
et may be instanced: this is found in more than
e schools. In some the little children are still
, one at a time, to point out these meaningless signs,
eir names. How common it is, I cannot say, but I
children called in the same way to give in order
ames, one, two, three, etc., as a first step in numbers.

of Classes. — A general fault in the mixed schools is
number of classes. A case may be cited, which,
reme, well illustrates this evil. To a method pro-
teaching some particular thing, a teacher objected
d too many classes for such a method. "How
es have you?" I asked. "Thirty in the forenoon,"
eply. "And as many more in the afternoon?"
iringly. "Not quite so many," he replied. "Fifty,
k, during the day?" — "Oh, yes, as many as that
he said. What can be expected but rote work in a
fifty classes? Yet to have twenty or more is not
.

us. — I have spoken in an earlier part of this report
ture. Some furniture is a necessity: the pupils must
s and desks; the room must have a stove. But the
nce of apparatus of all kinds except occasionally
maps, and here and there a globe or numeral frame,
feature of our district schools. With the ingenuity
acterizes some teachers, all necessary aids for teach-
eir way into the schoolroom: they contrive and con-

struct apparatus from cheap materials at hand. Instances have occurred where, without a dollar's expense to the town, the teacher has furnished all needed appliances for illustrating every topic he had to teach. There is much to hope for from such a teacher.

In very many of the schools the young pupils are not properly supplied with slates and pencils: there is consequently much idleness among this class, and great weariness often results. Some towns furnish these to all the children, from a general fund. I have found but few reference-books in all the schools: the little apparent demand for them is a serious reflection upon our methods and aims. A few committees have exercised their right to control the town's portion of the school fund, and have appropriated a part of that to the purchase of books of reference. With the evils enumerated, — and they are a small part of what could be named, — the wonder is that the schools accomplish so much.

Government, etc. — It was contemplated in my inspection of the schools, that their form of government should be observed, also their physical and moral training. The pupils in the schools in general have no systematic physical training. The stooping forms and awkward carriage, especially among the boys, show how much it is needed. In two schools I saw practice in calisthenics. The training received was mental as well as physical.

The order of the schools is generally good, and seems not to be prompted by fear of corporal punishment. Instances have come under my observation where the order is secured by an appeal to low motives, as ranking and marks; others, where flattery is employed by the teacher. In general, the reason and conscience are not sufficiently exercised. On the whole, the schools are largely controlled by arbitrary rules: these are repressive in their influence; the child is forbidden to do this or that. The rules are not discriminating: for minor and graver offences, about the same penalty is attached; the pupil, without other guide than the penalty, would think the dropping of a slate as great an offence as lying, whispering as stealing. The order seems to exist for the school and the teacher, not for the child. The school government is not, so largely as it should be, self-government.

In some of the schools recently visited, I have been particular what moral instruction is given. A single teacher who had set times for talking with his pupils of the y were forming, of the effect these habits have upon of the kind of actions that tend to give happiness and character, and so on. Here was a systematic course of in morals in a grammar school. But, with the ex- the incidental and silent tuition going on wherever a cientious nature exists in the teacher, no teaching of attempted. While this is a fair statement, and while s that occasions are not made for giving moral in- and that the subject does not present itself to the a primary object of the school, it is true that as a eachers are themselves highly moral, and do continu- a decided moral influence.

re schools in which a desire for knowledge and a th actuate the pupils. The atmosphere of the school- ne of honesty. There seem to be as much purity in of the boys and girls, and as much love and respect other and for the teacher, as exist in the best homes members of the family. I should be most happy to invitation to "come again," which was kindly sub- some of the papers returned from such a school in unty.

lready been distinctly stated that the tabulated results h my inferences are drawn are of the examinations the less populous and less wealthy towns of the These towns have a just pride in their schools; for support they give them, considering their means, most commended. The majority tax themselves above the f the State; some are below, and the schools suffer uence. Money is a potent means for improving the Let all the towns apply twenty-five per cent more to of teachers, and expend the money in securing and the best the market affords, and the schools could be fourth better. But with this, provision must be made and better supervision, — supervision which implies a ful selection of teachers, with no end in view but to eep the best; it implies a more careful classification of ls, the preparation of definite courses of studies, fre- minations, oral and written, for all grades, and the de- the most approved methods of teaching. Till all this is secured, and much more, the children will continue to be deprived of that education to which they have as just a claim a they have to the food that nourishes their bodies, or the air anc sunlight which help to make them strong and healthy.

My inspection has included a number of the schools in eacl of the other towns, and in the three cities. Only to a limitec extent, however, have I submitted any exercises as tests ir either.

Of the schools of the cities and of one of the towns, — with those of the other, I am less familiar, — I know enough to state with confidence that in their supervision, in their methods and results, they compare favorably with the best schools in the Commonwealth.

Respectfully submitted.

GEORGE A. WALTON.

Boston, Jan. 1, 1882.

C.

EXAMINATION OF SCHOOLS IN HAMPDEN AND FRANKLIN COUNTIES.

BY

E. A. HUBBARD, AGENT OF THE BOARD.

REPORT.

d of Education.

EN, — My time the last year has been given princi-
schools in Hampden and in Franklin Counties, and
institutes. The first two months, or until the close
er term, were given to Hampden. From minutes
time, I find that I made seventy visits to schools;
sometimes included all the schools in the town,
ut a few of them: but I did not visit one-half the
e county. My purpose was not so much to exam-
rve, to note and report, as to aid the teachers by
uggestions, by questions to the pupils, by advice
as sought, and by words of encouragement. Of
uld not fail to observe the methods of teaching,
ne, the general appearance of the schools, and the
ained; but the primary object was to assist the
the work given them to do. Generally one or more
f the school committees accompanied me, introdu-
the teachers and to the schools, and rendering me all
stance.

ner term, beginning in most towns in April or May
uest of Secretary Dickinson, was devoted to the
Franklin County. Here the purpose was not so
nder aid as, with the approval of the school commit
several towns, to examine, to note, to compare
to report. It was thought that such an examina
be of interest to the committees, and subserve the
rposes for which the schools were established. It
ed that I should visit every town, and, indeed, every
he county; but a full year would not be sufficient
n examination, and for tabulating the results. I

visited not more than one-half of the towns, and in but few of those was I able to find my way into all the sch The questions to be asked, and the information sought, partly general, and pertained to the towns, to the school tem, to the school committees, and to the teachers, and p particular, having reference to individual schools, school-b ings, and the progress of pupils. The questions were not pared by myself.

Those pertaining to the town were for its populatio valuation, the occupation of the people, the appropriatio schools; the school system, town or district; and the p sentiment toward the schools, as that sentiment was show the appropriations, in visits, and in a general interest.

Those pertaining to schools were to the kind of sc graded or ungraded, in village or country; the numbe schools; the number of pupils in each, and the average nu of each; the means used, if any, for equalizing the numb and to the high school.

Those pertaining to the school committees were for t number; their mode of examining teachers, of exami schools; the frequency of their visits to the schools; t meetings of teachers, and the results.

The inquiries with reference to particular schools perta to the site of the building, on ground high or low, moist or soil; to the school-yard, its size, its condition; to the out-b ings, their convenience and condition; to the material of schoolhouse, whether brick or wood; to the size and heigh rooms, to their furniture, their light and heat and ventilat to the supply of blackboards, maps, globes, books of refere and objects for oral teaching; to the teachers, whether had had professional training or experience, or both; to t method of teaching, the oral or written, or both; and to course of studies they were followir.g.

The examination of pupils was not intended to embrace grades of schools, or all the pupils in the ungraded schools, to determine about what is accomplished in the first fou five years of the child's school life; also what in the next or five years. It sought to test the knowledge of a class a ready to leave the primary or intermediate grade for the g mar, and of a class ready to leave the grammar school for high school. It was assumed that the ages of the one

om nine to eleven years, and of the other from thir-
en years. The examination was therefore limited
f about those ages, and included reading, writing,
ography, arithmetic, and language. As the exami-
in writing, it embraced punctuation, the use of
division of words into syllables, and the general
of the exercise.

upon this work early in April. The school com-
comed me to their schools, sometimes accompanying
reat sacrifice of their time and convenience, and
imply giving to the teachers notice of my coming.
rs also, without exception, received me cordially,
rare instances I thought with a little fear lest an-
bly a better, way of doing some things might be
I very soon saw that the examination could not be
ns of comparing the schools of one town with those
This arose partly from the fact that there was not
to the several schools precisely the same examina-
term was ten or twelve weeks in length, there were
two hundred and fifty schools in the county, and
same town were often so remote from one another
hree could be visited in a day, to say nothing of
them. Besides this, the circumstances of towns
are so different, that any comparison of the schools
njustice to one or both of them. Indeed, the cir-
in different parts of the same town are sometimes
to prevent any just comparison. I have found two
the same town, called by the same name, high or
s the case might be, — one in a village a hundred
ith no foreign population, with an established order
and the other in a manufacturing village hardly a
onths old, where a majority of the people were for-
ere the mass of the children were not only of for-
age, but were themselves foreign born, who heard
English spoken in their homes, and who, when they
ool, could not speak or understand a word of Eng-
the rapid growth of the village, and the great
r operatives for the mills, children enough for a
brought in in a single day; but a schoolhouse, be
ever so ready and willing, — a schoolhouse cannot be
lay. Accordingly, I found two teachers occupying

halls, not built for school purposes, each with twice as m
pupils as teachers ought to have, most of them of the c
above referred to, each struggling under difficulties that see
well-nigh insurmountable. What justice can there be in c
paring the schools in the one village with those in the oth
In their own town the reasons for the differences would
understood; but such a comparison between different to
would be misleading.

I was also convinced that in many instances the examinat
furnished me no proper means of estimating the value o
teacher's work. Again and again it was said to me, especia
if the questions were not well answered, "I am not responsi
for the ignorance of these children: I have been with them
a week;" and occasionally, though not as frequently, when
results were better, "I am not to have the credit for this: I h
been in the school but a few days." This state of things see
to be inseparable from the country schools; for these frequ
changes will exist so long as better teachers can find more re
nerative positions, and poor teachers, and persons without ex
rience, can be found to take the places made vacant.

Moreover, no comparison of the efficiency of the differ
boards of school committees will be just and reasonable t
does not take into account the peculiar circumstances of ea
We find one board in a village, each member in the immedi
vicinity of every other. They can, without trouble, co
together to discuss matters pertaining to their schools. So
of them are professional men. Ten or fifteen teachers are wit
call, and it is easy for the school committee to confer with the
gain information relative to their schools, and receive sugg
tions. But another board is in a farming town, the memb
themselves farmers. They are each two or three miles fr
any other, and the same distance from all the schools save t
one in the district in which each lives. They serve, not becau
they think themselves qualified, but because they belong to o
of the two great classes into which some one has divided socie
— the one composed of those "who will serve on committee
because "somebody must," rather than to that other class "w
will not serve on committees" because "somebody will." Th
are men of good intellects, faithful and conscientious, and th
seek to do, and do, the best they can; but what the one boa
can do with ease, the other does with difficulty.

ination, then, can do little more than give a general
ondition of the schools examined; and whether that
satisfactory or unsatisfactory, whether those respon-
ught to be praised or censured, must be determined
mstances.

from the Tables found in the Report of the Board of Education,
1881.

n of the county (census of 1880) . . .	36,000
in 1881	$15,808,509 00
tion for schools (raised by taxation) . .	$60,303 02
f persons between five and fifteen years, May	6,458
f schools	251
attendance, that is, the entire enrolment .	7,157
embership	5,018
f attendance	.89

rvision of the schools is by the school committee,
xpense of $2,383.20, an average of less than $9.50
ool, of $0.369 for each person in the enumeration,
24 for each person of the average membership.
al occupations are agriculture and manufactures.
sentiment toward the schools is reported good, as
re generally willing to vote what appropriation the
ask, but does not show itself in frequent visits to

SCHOOLHOUSES.

lhouses in the villages are comparatively new, well
well furnished. The rooms are large, high-studded,
oves or furnaces, furnished with means of ventila-
less successful, with a good supply of blackboards,
me helps of the nature of maps, globes, numeral
books of reference. As these buildings are designed
date several schools or classes, the rooms are not
lied with a sufficient amount of sunshine, nor,
ys with sufficient light. Generally, however, the
s are good, and well adapted to school purposes.
are large enough, unless, it may be, in some manu-
lage, where the school committee with their best
nd the people with a readiness to do whatever is
nnot keep abreast with the increase of population.
nother class of houses, built a generation or two

ago, which have been kept in such repair that they are com
and comfortable for school purposes. They were built for
district schools, when the pupils in the winter term numbe
from fifty to seventy, and in the summer two-thirds of t
number. However much too small they may have been for
schools then, they are large enough now, when the district t
can furnish one-third or one-half the former number is fortun
and exceptional. The walls have been newly plastered, or
covered with paper; the windows with their small panes ha
given place to more cheerful ones; and the marks of the m
ter's "raps official" upon his desk to keep his school in ord
or upon the window-sash to call in his romping boys and gir
are obliterated; and the "jack-knife's carved initial" is "l
to sight," though "to memory dear," by the introduction of ne
furniture. These houses have some blackboards, but not
many as are desirable, and other helps are very few. There a
no special means of ventilation; but with windows upon thr
sides of the room, admitting more or less fresh air, there is litt
annoyance from the lack of it.

There is a third class of houses, built so long ago that t
"memory of man runneth not thereto," whose furnitur
inconvenient and unsuitable at first, remains unchanged for t
better, and whose appearance is in every respect disheartenin
Nothing indicates advancement save what may be found in t
improved methods of the teacher; and it is difficult to keep
progressive teacher in a house in such a condition and wi
such surroundings. There are not many such houses (at lea
I did not see many such); but almost every town I visited ha
one, — some, more than one. In these there is nothing to invi
pupils, or to encourage teachers; and it is difficult to unde
stand how parents living in comfortable homes, and loving the
children, can consent that for six hours a day and five days
week, for twenty-five or thirty weeks in the year, those childre
shall be subject to such influences.

Grounds and Out-Buildings.

In many instances there are no grounds enclosed about eve
the better buildings, the first class mentioned. The building
are upon the ground, it is true; but they have no ground
There are no trees; there is no shrubbery, no ornamentation
any kind. There is nothing to please the taste, nothing t

it, nothing to suggest it. If any thing can be called round, it is simply the region in the vicinity of the se. There are some exceptions; but the absence of nclosed was noticeable.

second and third classes spoken of — the old district ses — can have no enclosures. They stand beside the upon a knoll, or in an angle, or near where cross-roads he road is the playground, and that may not be The children, few in number, do not mind this: they y to school and to play, and are not very fastidious.

t-buildings, in a majority of cases, I think, are in a condition. Without locks and keys, they are of open to the public. Teachers cannot be held responheir condition unless they can control them, and even a difficult matter. It is more easily done when a employed, or where there is at least one gentleman teachers ; but it can be done, for it has been, where only ladies. The school committees, or truant officers, ficial, can aid the teachers greatly, if they will keep hat, as "the way to resume specie payments was to o the way to keep these buildings in order is to keep der, and, if any thing wrong appears, to have it made ediately. Some of these buildings are filthy to the e. No lady, or gentleman for that matter, would be look into them, nor is it easy to understand how any be willing that his son or daughter should step into me of them are so closely connected with the schoolo be offensive; some are not large enough for the pupils; often they are not sufficiently screened from ze, nor are the apartments for the boys and girls separated. If I owe an apology to any for speaking subject, it will be found in the condition of things.

now from the exterior (the school-buildings and oundings) to the interior (the teachers and their will speak first of the teachers, their professional heir experience, and their permanency, and then of ation of the two classes I proposed to examine.

TEACHERS.

the teachers of the public schools of Franklin County t professional training. From the tables making a part of this report of the Board, it appears that only twenty-fo of the teachers of the county are graduates from any of t normal schools of the State. This is only six and a half p cent: while in Hampden the graduates from the normal scho are fifteen per cent of the whole number of teachers; in M dlesex, twenty-one; in Plymouth, twenty-five; and in Suffo more than one-half the female teachers are graduates. greater effort is made in the county now than formerly secure teachers from the normal schools; and I was pleased learn that in some of the towns the school committees are frequent communication with the principal of the school Westfield, and are securing some of the best graduates, wh are meeting with remarkable success. Other teachers have ha a long, and to a greater or less extent a successful, experienc while some are keeping school without training, or experienc or knowledge. They are seeking to teach what they do n know, to explain what they do not understand, to guide whe they do not know the way; and if the pupil can repeat th words of the book, or will assent to the statements of th teacher, the teacher is too often satisfied.

But, on the other hand, there are teachers who have a goo education, who have had professional training, a long exper ence, and permanent places. They have tact, skill, and a lov for the work, and their pupils are a credit to them; and bot teachers and pupils are a blessing to the community. Suc persons teach, not simply assign lessons and hear recitations and their pupils have ideas and thoughts, and not simply th words by which thoughts are sometimes expressed.

Examinations.

The class whose ages ranged from nine to eleven years wer examined in reading, spelling, arithmetic, penmanship, an language. A selection from the Third Reader was given fo the reading exercise. The result showed great differences i classes of the same grade in the same town, and great differ ences in pupils in the same class. Sometimes I found in class of poor readers one or two exceptionally good ones; and when I asked for an explanation, I was told that the exceptio ally good reader attended Sunday school, and took books fro the library, and read at home. The teacher did not mean tha the child stood before her mother and read orally, but that sh ly for her own pleasure and profit. If the classes in s read less orally, but more silently, books within prehension, would they not sooner become good Would such a note as this which I find upon my be made? "Reading was poor: only one in a class of twenty-five read well." Still some classes read

ords were given for spelling, not as words are ordiounced in a spelling exercise, but in sentences for the write. They were, "sugar, their, pleasant, whose, y, write, there, which;" and each sentence contained re of the words to be spelled, as, "I like maple-I will write next Wednesday;" "Their house is ant."

lt showed about twenty-seven per cent of misspelled he best, eleven per cent; the poorest, sixty; the ging between those extremes.

metic simple examples were given: as, "9 and 7 are ? 27 and 8? 7 from 62? 9 times 6? 7 times 8? 11 in 110? $\frac{1}{7}$ of 35? $\frac{1}{6}$ of 58?" and one problem, ave 9 cents for a whistle, 8 cents for a top, and noney enough left to buy 2 bunches of fire-crackers a bunch: how much money had he at first?"

lt in arithmetic showed sixty-six per cent of correct -the best, ninety-four per cent; the poorest, twenty-

xercise in language, a class was sometimes asked to the selection they had just read; but if they could well enough to do that, or if there was not time for re asked to write this sentence: "Where did your y their new cloaks? At Mr. Smith's store, I think, andkerchiefs too." Some were asked to write letters. ise showed the pupils' penmanship, some good, some ble; their knowledge of the rules for punctuation and iations, and this was very slight. Capitals were used usly in sentences, and often not used where they In one school, wherever the pronoun "I" began a he capital was used; but, when it occurred elsewhere ences, the small form was used, and often joined with ord, as "ithink." Very few expressed the possessive he noun correctly; and monosyllabic words were

divided, a part put at the end of one line, the rest at the b
ning of the next, as, "cloa" at the end, "ks" at the beginn

The general appearance of the papers showed that the pu
were not much accustomed to written exercises, and man
them undoubtedly would have appeared better in an oral
amination; and yet the papers of some were very creditabl

The other class of pupils examined were those about r
to enter the high school, and their ages varied from thirtee
fifteen years. They were examined in reading, spelling, a
metic, geography, penmanship, and language. For the rea
a selection was made from the Fourth Reader. The rea
was not good. In some instances it was difficult for a pe
listening to understand the story read, and this arose part
least from the fact that those who read did not understan
Some classes read much better than others, and individ
better than the class; but I did not find in this grade
seemed to me exceptionally good readers, as I did in the
mary. Looking over the minutes of the reading made at
time, I find such as these: "poor," "very poor," "po
"pretty good," "fair," "fair and in some instances good,"
firming the impression made eight months ago, that the rea
on the whole was not very satisfactory.

A list containing eight words was given for spelling. T
were "principal, business, hire, perceive, fiery, inflamma
dictionary, and February." For their penmanship and lang
a story was given out to be read and reproduced, and the
spelled words found in their statement of it were also noted

For convenience I will designate a few schools by letters.

A.—In this school twenty-five per cent of the words in
list were misspelled; but in the story several pupils had
errors, and the average was about two to a page of note-pap

B.—Of the list, sixty per cent were misspelled, and in
story one error to three and a half lines of a Congress sheet

C.—In this school the story occupied on the average a
and a half of note-paper to each pupil. On four of the pa
there were no errors, on six others sixteen.

D.—Of the list, one-half the words were misspelled, an
a single page of note-paper one pupil fourteen years and e
months old misspelled forty-two words out of one hundred
forty-seven, or one out of three and a half used; while ano
pupil in the same school, two years younger, misspelled but
word upon two pages of the story.

ere were thirty-five per cent of errors in the words and in the story rather more than one to a page of

e out of sixteen pupils, when asked to write the ieir school, wrote "Gram*mer*" school; and in the iundred and ten words were misspelled, averaging ige. These children were largely of foreign parent-

the list words, there were thirty-one per cent of he story, four upon a page.

a class of twenty-one, twenty misspelled the word ion;" beside this there were only twelve errors. In here were but sixteen errors upon forty-two pages er; the papers of twelve pupils were free from mis- ds. The average age of this class was fourteen and irs.

class numbered eighteen, their average age less than irs. Two had no errors in the list words, one mis- of them, two all but one, and the errors of the class ty-five per cent.

noticed that in most cases a much larger per cent pears in the words of the list, than in the re-writing .

ietic the following problems were given:—

e average age of twelve persons whose ages are as follows:—
9 years 3 months.
0 " 9 "
4 " 7 "
9 " 2 "
6 " 8 "
7 " 8 "
16 years 7 months.
7 " 11 "
18 " 8 "
17 " 6 "
8 " 9 "
10 " 6 "

quires 804 men working 12 days to build a road, how many require working 9 days to do the same?

ny cups of coffee, each containing ⅔ of a gill, in one gallon of

nterest should be paid on a note of $287.50 from May 15 to following June, the rate being 5%?

ny inches on both sides of a slate one foot long and six inches

e cost at 90 cents per square yard of a concrete walk on the e of a corner lot of land, the front of the lot being 8 rods long 10 rods, the walk being outside of these measurements and 9

The problems were none of them difficult; and half o
— the second, third, and fifth — required but few figu
will state results taken from my notes, designating each
by the same letter I used in the report of the spelling.

A. — Less than one-half of the problems were co
solved.

B. — Only one pupil attempted to solve the six pro
Two pupils solved three correctly, another two, anothe
Fourteen did not have any correct answers, and some left
ing upon their papers.

C. — One pupil had correct answers to four of the pro
two others each to three, two others each to one. Three
pupils had no correct answers. The class gave about t
five per cent of correct answers.

D. — Only a trifle more than one-third (thirty-five per
of the problems were correctly solved. The first one,
required an average to be found, was not attempted i
school, as it was not in some others, because the pupils d
know what was meant by an average, or how to find an
age of several different numbers.

E. — Very poor. No pupil solved more than one p
correctly, and only three were solved by the class.

G. — Poor. Two pupils solved two each, six solve
one, and three solved none.

H. — Five pupils solved every problem, five others a
one, five others all but two, and six only half or less than

The result in arithmetic is by no means flattering. It ha
said that arithmetic is better taught in our common school
any other subject; but, judging by this examination, w
hope that this is not true. Comparing the examination
grade with that in the primary, that of the lower grade
better. Examples were given there, problems here.
required correct ciphering, these good reasoning and c
ciphering. Some of the work in the problems showed c
ciphering; but the conception of what the nature of the p
required was so wide from the mark, that a correct answ
impossible. May it not be that our pupils are taught, or
taught are allowed, to depend too much upon the rule, up
subject found at the beginning of the section or upon t
of the page, forgetful of the fact that in an examination
practical life they will find nothing outside of the prob

hat they must know from the nature of the problem is required, or the problem must remain unsolved? ›wing were the topics in geography submitted to the

map of Massachusetts, locate and name four principal rivers). Locate Boston, Springfield, New Bedford, Nantucket, and n. Indicate with a cross the place of the highest land in the

hree leading industrial pursuits of the State of Massachusetts; ıat which you think produces the most wealth.

in the United States can we obtain coal? iron? copper? gold? ?

hree large gulfs or bays on the coast of the United States, and important river that flows into it.

he zone through which the equator passes, and give its width

he highest mountains in Europe; also three rivers that rise in , and tell into what body of water each river flows.

›ers in geography indicated that in some of the p-drawing was not much practised, and consequently hools the map of Massachusetts was not well drawn. asked or expected that a beautiful map would be he time allotted for the exercise, but one that should lerably correct outline of the State, and one upon ew points could be fixed. While in some of the e maps were quite well drawn, in others Plymouth, d Barnstable Counties were represented to be in the ude with Hampden; and of course Cape Cod was to the north, as far north as Boston or even Glouces- Bedford and Springfield were located in Berkshire nd Nantucket a little north-east of Boston, or on the in Worcester County. The second, third, and fourth were quite satisfactorily answered in many of the ›ut to the fifth the answers were various. The width one through which the equator passes" varied from 0, and on some papers the equator passed through the mperate Zone, and in one through the North Temper- Temperate, and the Torrid Zones. In one school other papers were very good, and the paper in geog- with the exception of the answer to the fifth, most pils appeared to have no basis for an opinion of the the zone, and did not venture to express one. It

seemed that they had learned the width without acquiring a
knowledge of the zone; and so, having tried to remember a
having forgotten, they now knew nothing about it.

LANGUAGE.

To test the ability of the pupils to take in the thoughts
another when expressed on the printed page, and to expr
those thoughts in English, to exhibit their penmanship, th
spelling, their knowledge of the rules of punctuation, and
syllabication, the following story was given them to read a
reproduce. It was printed upon a card, a copy given to eac
and after a reasonable time the cards were collected, and t
pupils wrote.

"In a field of wheat, ready for the sickle, there was a nest of you
larks; and their mother, whenever she left the nest to go in search of fo
for them, charged them to listen with great attention to any words th
might hear spoken by persons visiting the field. Accordingly, on her retu
one evening, her young ones told her that the farmer had been there wi
his son, and had said to the young man, 'This grain is quite ripe: go, c
upon our neighbors and friends, and ask them to give us their help to-m
row in reaping the field.'—'Oh!' said the old lark, 'if that is all that w
said, we need not leave our dwelling just yet; but mark well what the far
er says, if he comes again to-morrow.' Next day came, but no help ca
from anybody; and the farmer again going his rounds, and seeing that
friends were not to be depended on, said to his son, 'This grain ought to
cut without delay: go and ask your uncle and cousins to give us th
assistance.' The little birds trembled as they told this to their mother, a
begged her to seek a safer home for them. 'Nay, my children,' said sh
'sleep without fear: there is no danger yet.' She was right, for none
the relations came. The next time that the farmer walked past the nest,
was heard to say to his son, 'I see we cannot rely on others, and to-morr
we must take off our coats, and reap the field ourselves.' When this w
reported to the lark, she said, 'Now, my children, there is danger indee
we must stay here no longer, since the farmer has ceased to look for he
from others, and has resolved to do the work himself. He will now,
doubt, mind his own interest; and therefore our business is to get out of t
way.'"

Of the spelling I have already spoken. The penmanship,
was to be expected, differed much in different schools, much
the same school. Some papers indicated that a system of pe
manship was taught and well taught in the school; others, th
no system was taught, even if the pupils wrote at school; an
while the penmanship as a whole was quite good, some of it w
more fashionable than legible. Others still showed that n

or attention was given to the subject at school or at
rhaps I cannot give the impression made upon me by
of the different schools in any better way than by
om my minutes.

bout one-half the class gained a full and correct idea of the
y few expressed the ideas grammatically and well. Most showed
of the correct use of capitals, and very few showed any knowl-
use of punctuation-marks, even the most common. In only
ghteen papers were quotation-marks used."
ch words as 'lark,' 'night,' and 'brought' were divided, — a
he end of one line, the rest at the beginning of the next."
pitals and punctuation-marks were quite correctly used; but
arks were not used, and words were sometimes improperly

the story the pupils were quite successful. They generally re-
orrect ideas, and expressed them grammatically and happily.
good knowledge of the use of capitals, of punctuation, and of
rks."

ers from the various schools differed greatly in their
pearance. Some pupils were accustomed to written
examinations, or recitations, and their papers fur-
of of the fact; while others evidently were not accus-
uch exercises, and hence worked to a disadvantage.
hen I put the classes to writing, I was told I had
at their weakest point. Had the classes been called
eir teachers to write more, the mistakes would have
r.

thus given, imperfectly I know, the result of my
n of a part of the schools of Franklin County.
me good schools, more poor ones. Where I found the
ls. I found that the teachers had had a professional
r a valuable experience, or both, that their situations
anent, and that they were paid better wages than
the teachers in adjoining towns or in other sections
wn town. I found also that the schools are better
where there is a good high school, than in a town
re is none. Where I found poor schools, I did not
d a lack of interest or of good-will or of effort on the
e school committee, but obstacles that seemed insur-
. When a town pays a school tax of four to six mills
r of its valuation, it cannot reasonably be asked to
We hear it said that the children are the children

of the State; that the State needs an educated citizenship,
therefore undertakes the education of the children. If all
is not a "glittering generality," a mere "rhetorical flourish
becomes the Commonwealth to do more than it has don
assist the towns who thus tax themselves for their schools.
tax paid by the State equal to two or three mills on a doll
a town's valuation, to a town which taxes itself for its sc
four mills or more on a dollar, would be a great help to
town, and a recognition of the principle that the State as
owes the children an education. Even then the poorer t
would find that to maintain good schools would tax all
energies.

In the summer vacation I visited various towns in the
western counties of the State, some of them more than onc
decide upon places for holding teachers' institutes and to
arrangements for them. The Secretary began to hold
early in September, and until the middle of November I
constantly occupied with them. Since that time I have
busy at his office upon the statistical part of his report,
my home upon the papers of the several schools examined,
upon my own report, which is herewith

Respectfully submitted.

E. A. HUBBA

SPRINGFIELD, Dec. 31, 1881.

D.

REPORT ON INDUSTRIAL ART EDUCATION FOR THE YEAR 1881.

BY

WALTER SMITH,

STATE DIRECTOR OF ART EDUCATION.

REPORT.

ports which I had the honor of submitting to the the years 1879 and 1880 were of such length and nsiveness of detail and general scope, that I feel so rt of this year's work is, under the circumstances, not though the development of this branch of public-ication has not diminished, either in its results, or in st felt by the public.

The Normal Art School.

nclusion of the school year at the end of June, 1881, d also the first year's occupancy of the Deacon House al Art School, and enables me to record the results rring the students to increased and more commodious han have been occupied in previous years.

ect which the Legislature, by its resolve of April 13, ght to secure for the school by its removal from 28 reet, was, to use the words of the resolve, that "*said tions to be in a building or part of a building which, ntrance or entrances to it, shall be under the exclusive the officers of the school;*" and this condition was in- remedy serious and proved inconveniences in the past of the school, arising from the absence of such

s experience at the Deacon House, in an isolated xclusively controlled by the officers of the school, w important the condition was to insure successful tion and the comfort and convenience of the stu- he marked improvement in the character of the work by the students was noticed by me in my report for n we had been in the premises only three months of

the school year; but it was only when that year terminate
June, 1881, that the nature of this change could be fully
mated.

The exercises in time-work wrought at the yearly exan
tions, and the finished drawings, paintings, modellings,
designs presented as diploma or certificate works, prod
during the year, entirely surpassed any thing ever before
duced in the school, and might be described as a transform
from twilight to daylight. The additional space and impr
lighting, the convenience and personal comfort of both stuc
and teachers, with the improvement in spirits which resu
had borne fruits in the studies, and amply justified the rem
of the school.

In this connection I might refer to the exhibition of the
plete course of studies as pursued in the four classes A,
and D, which was made at the Mechanics' Fair in Boston,
ing the months of October and November, 1881. One
room was nearly filled by the works of the four classes, re
senting in order the four years of graded study. Part of
room was occupied by the exhibit of the industrial-art wo
the public schools in New Bedford. These two exhibits, w
together filled the room, were the most remarkable displa
pupils' work in these branches that I have ever seen, he
elsewhere; and I speak with considerable personal knowl
and observation of similar displays in this country and in
rope. This result is suggestive of the practical conseque
which follow in the path of systematic study, as well as
capacity of our race (sometimes doubted in the past by s
never by me) for success in art.

As a consequence of the faithful and continuous labo
teachers who have been engaged in the Art School fron
establishment, this result, so far as the school is concer
ought to be recorded and acknowledged by myself, under w
direction they have worked, and who alone have had the op
tunity to observe intimately the growth and improvemen
the school and its students during the period covered by
engagements as instructors. This duty I gratefully perfo
the more willingly because two of these instructors, Miss M
Carter and Mr. William Briggs, ceased their connection
the school at midsummer last, the first after eight and
second after seven years teaching in it.

W. Vonnoh, a student of the school, and more re-
assistant teacher in it, resigned his position in order
his studies in art abroad; and Miss Dora M. Norton
ed to accept a better appointment in the Columbus,
of Art. Thus, of the nine teachers employed up to
, four ceased their connection with the school at that

ges of duties and the increased employment of some
nly two new teachers were engaged in the places of
left, — Miss M. A. Bailey and Mr. A. H. Munsell
. Carter being employed for one exercise per week
d I cannot more completely show my good feeling
em as late students and present teachers of the school
ishing for them success as thorough and distinguished
ich has been won for the school and themselves by
cessors, when equal application and experience shall
displayed and acquired by them in their new oppor-
d engagements.

endance of the year 1881–82, as compared with the
880–81, is as follows:—

CLASS.	No. of Students.	
	1880-81.	1881-82.
ar	130	76
year	56	58
ear	9	6
year	16	12
s	72	abolished.
. . . .	283	152

ws a serious decrease in numbers, but some new
ay enter for the second term, and make the contrast
g; though the abolition of the evening class must
reduce the total number of students for the present
npared with the last.

The Normal Schools.

ling of the subject of drawing, adapting its several
d subjects to the capacities of pupils in different
he public day schools, has been a work of time, and

could not proceed more rapidly than the creation or dev
ment of agencies by which it could be carried out. Thi
been now so far accomplished that a systematic arrange
of work in all grades has become possible, and was fully det
in my report of last year; the "plan and graded program
of the day school portion having been a part of the repo
1879.

The character of the drawing which should be taug
normal schools has by this progress assumed a more dis
form. For a long time the students in them came without
or with little skill in drawing, and consequently had to be ta
to draw. In recent years the teaching of drawing in p
schools to children has prepared the normal students, not
for higher instruction and advanced practice, but for the s
of how to teach the elements of drawing. This is an impo
advancement in normal work, bringing the subject up t
plane of other studies, and enabling the special teache
drawing in the schools to prepare their pupils for succe
practice in teaching in the class-room, whilst in previous
they had enough to do in teaching them to draw.

Making use of this progress, after my usual visits t
schools, and observation of the work, I have been enabled
ing the past year, through the co-operation of the princ
and special teachers, to arrange and introduce a uniform c
of practice in drawing and teaching drawing in all the sch
and to bring it into operation in September, 1881. It is arra
progressively for three years of study, and is of three gr
called the first, second, and third grades, corresponding t
primary, grammar, and high school grades of day schools.
embracing in its practice the subjects which should be ta
in those schools.

The means of instruction are the blackboard and the o
only, and no printed text-books are to be used in either g
by the pupils. This throws much additional work upon
who teach drawing in the normal schools; for the metho
teaching is by class instruction only, and it has been admi
well done so far. No better evidence could be given o
general progress made in this whole subject than the ready
excellent manner in which both the teachers and the stud
have taken up the study on a broader basis than before exi
I have examined the work done upon this plan in all

d am thoroughly satisfied with it. From my obser-
o, I judge that both the principals and teachers of
the schools are well pleased with this new depart-

levelopment as this was not possible before, from
es, the principal of which was the want of prepara-
h work on the part of the students, before referred
that which assists in making it possible now, and
y successful also, is that the special teachers of draw-
normal schools are exceptionally admirable teachers,
ence in education and skill in teaching drawing such
ardly be equalled outside of the schools. This is a
result, and gives the most hopeful and promising
of future progress in industrial art which the State
has to show; for by this development the education
ents of taste and skill of every child will be provided
future, through the previous instruction of every
ilst in the normal schools.

erences of all the teachers of drawing from the nor-
, which have been held on my invitation at the Art
Boston during the past year, have been very profita-
couraging, tending to uniformity of action and mu-
hich predicts further advancement.

EVENING INDUSTRIAL DRAWING CLASSES FOR ARTISANS.

nce of qualified teachers for these evening classes is
me extent remedied by the training given in the Nor-
chool to students who become their teachers. But
is equally necessary to successful instruction and
ion of these classes, viz., experience, cannot be given
school nor to young teachers; and until such expe-
been acquired, both by committees and teachers, the
the classes must be variable.

onsidered that the most valuable work which could
advance good results was the training of promising
both sexes to become teachers, when the opportunity
uld be given them in the class-room; and to formu-
ir guidance practical plans of instruction to be car-
such classes as might be intrusted to them. The
e Normal School has secured the first of these aids;

and the scheme for class instruction which I drew up fo
evening classes of the city of Boston, and is now in its se
year of successful operation in them, furnished the sec
The publication of this scheme in the last Annual Report o
Board of Education, and in a separate form as one of the p
issued for the information and guidance of the Normal
School students, has made it available for all the evening d
ing schools in the State; and either as it stood, or modifie
suit local arrangements, it has been widely adopted.

The absence of a systematic plan of study, and desulto
individual instruction of pupils in evening classes, is resp
ble for much of the want of interest felt by the classes, an
the greater part of the irregularity of attendance by the
vidual pupils. This frivolity and irregularity of attend
has been the most crying evil, and the most difficult to c
but it has already been seriously diminished in Boston, and
I am persuaded, be practically cured by the scheme of s
now introduced, it it should be persevered with, and may b
effectually prevented in other places by adoption of the s
means.

As this is a practical question, viz., the attendance of pu
and one which affects the existence as well as the efficienc
these evening classes, it may be useful to describe here
experience of the city of Boston in this matter.

When the classes were first opened, about eleven years
it was found that a large number of pupils offered themse
for instruction, and continued to do so at the commencemen
each annual winter term, who felt no responsibility to att
the meetings through the whole term, or to attend even f
time regularly. Thus the classes were large at first, and d
dled away as the session progressed, or were re-enforced by
pupils who were admitted at any period of the course; and
who began remained to the end of the term. Many eff
were made to remedy an evil so great, and in the year 187
proposed a plan of class instruction and a form of admissio
students to the classes, by which they engaged, if admitted,
attend regularly through the whole course from Octobe
April, unless prevented by sickness or removal from the ne
borhood."

This proposal, perfectly just as it would have been to
public which paid for the instruction, and to earnest stud
who sought it, was regarded as an interference with the ri

ils to study what subjects they chose, and their free-
tend as often as they conveniently could; and so the
not accepted. The evils continued, and were brought
ntion of the committee by Dr. Eliot, the superintend-
ools, in the winter of 1879–80, who suggested, entirely
own observation and without having conferred with
subject, the cause of the evils, viz., the absence of a
lan of study, and the irresponsibility felt by the stu-
ttend regularly. Upon his suggestion to, and by
of, the school committee, I was required, in the spring
o report upon the evening drawing schools; and did
g into my report the proposal of 1875 which had not
accepted. This scheme for the re-organization of the
suscitated in 1880, was adopted by the committee,
into operation in the fall of that year.
ded for, —
o-years' course of study: (1) elementary, (2) ad-
technical.
ission of students by examination, and on a written
t on their part to attend regularly, or forfeit their
unless absences were satisfactorily accounted for.
instruction by teachers, and a uniform and system-
of studies by the pupils.
inations at the end of the course in all the subjects
d award of certificates to those who produced the full
works required, and passed the examination.
king-out of this scheme during the session of 1880–
October, 1880, to April, 1881) was closely supervised
; and though the work was new to most of the in-
nd required more discipline and attention on the part
ils than was expected before, the result was consid-
eminently satisfactory, on the whole. At the end
sion I examined every exercise presented, produced
he classes during the year, or at the examination at
it, and ranked them, after the instructors had pre-
for the scrutiny, and recorded their own opinion of
This supervision and examination gave me a thor-
tunity to see the influence of the change which had
, and to compare the statistics of attendance and
nstruction with those of previous years; without a
was a development entirely in the right direction.

The following table of statistics gives the details of the year's experience, compared with those of the previous year, 1879–80: —

Statistics of the Free Evening Drawing Classes of the City of Boston for the Years 1879–80 and 1880–81.

NAME OF SCHOOL.	1. No. of Students.		2. Average Evenings Attended.		3. Average Drawings Produced.		4. No. who sent no Drawings.		5. No. Attended Examination.	
	1879-80.	1880-81.	1879-80.	1880-81.	1879-80.	1880-81.	1879-80.	1880-81.	1879-80.	1880-81.
Appleton Street .	206	136	28/80 *	25/60 *	2	6	69	36	96	62
Tennyson Street.	93	101	24/80	24/60	4	11	13	19	41	50
Roxbury . .	210	101	13/80	28/60	5	8	60	24	70	38
East Boston .	115	67	23/80	30/60	3	7	21	–	53	24
Roslindale . .	73	40	25/80	31/60	5	8	30	12	25	18
Charlestown .	112	88	21/80	26/60	2	7	38	25	46	22

This table requires some explanation to show reasons for considering the results an improvement in 1880–81 on those of 1879–80. For convenience I will refer to each column as indicated by the numeral at its head.

1. It will be seen that the number of students are recorded in each class, except one, as being fewer the second year than the first. But in the first year's column every student who attended even but once or twice was recorded: in the second year only those who attended a minimum number of five times were recorded.

2. The second column shows the flagrant extent of the evil of non-attendance and irregularity, which, though it was seriously improved in the second year, was even then extremely unsatisfactory. To take the first class on the list: In 1879–80 the Appleton-street class was open for study eighty evenings, and the average attendance of the students was twenty-eight evenings only, or a little more than one evening in four, — which means that the city incurred the cost of keeping the classes open, i.e., paid for instruction, lighting, etc., for nearly

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* The upper figures in the fraction give the average number of evenings the students *actually attended*; the lower number gives the number of evenings the classes were open, and which they *might have attended*.

ıings out of four when the students were absent. But 31 the classes were open sixty evenings, and the stu-ınded thirty-five evenings, or more than two evenings a decided improvement, but one which requires still ıntion to make it as it should be. So with the other

very case the result of better attendance, and to some more systematic study, was the production of more ır work, as is shown by the figures.

shows that the number of students who had no le work for examination was also decreased by the i.e., more students had something to show for their study.

number attending examination at the end of the ıs considerably less the second year than the first; and ounted for by the fact that in the first the students nined in only two subjects, whilst in the second there subjects of examination; and to be qualified for them nts should have attended the lectures, and produced ficate drawings in the several subjects, to be entitled amination. Many, through irregular attendance, had ne so qualified, and were not therefore present at the ions. In the first year there were no restrictions.

h there must be, in every class for adults who are t on their daily labor for support, a certain amount ary irregularity of attendance, arising from sickness, work, or removals, these causes do not explain such a proportion of irregularity as is here shown. Most ıpils are under twenty years of age, or thereabouts; of the legitimate excuses for non-attendance do not ways to them. Besides this, it is somewhat significant greeable weather affects the attendance of adults at classes more than it does that of children in the day

esultory character of the instruction, and want of sus-terest in the work, may be responsible for some of this ndance in the past, but does not account for it now. is substantially removed, the results of the instruction f little practical value, either to students or the com-

ogress made to this end, by one year of better organization, and on an improved plan of instruction, indicates that time, and with sustained care, the evil may be modified to great extent, and should finally be completely remedied.

The State Exhibition of Drawings.

It was thought advisable to hold the annual exhibition drawings during the past year in the Mechanics' Fair, rath than in the usual way at a separate exhibition. Owing to delay in issuing notices of such an intention, few of the citi usually represented made an appearance. Want of sufficie room in one place prevented the works which were sent fro being displayed together, and thus the interest in the collecti was to some extent decreased by the isolation of its parts. A awards of medals and certificates were offered by the manage of the fair, it was not considered necessary that other awar should be given; and consequently the distribution of marks "excellent" and "honorable mention" was not made, as i previous years, by the State board of judges.

The classes represented at the exhibition were from King ton, Dedham, Brockton, New Bedford, and South Boston, an the large exhibit of the Normal Art School. Awards wer made to the displays of the Normal Art School, New Bedfor South Boston, and the Brockton evening school. It is to b regretted that, for the first time in nine years, the city of Bos ton had no exhibit of the evening-school work, either at th fair or elsewhere, during the year.

Conclusion.

The continuous training of students to become teachers, a carried on in the Normal Art School; the normal work in th study of drawing as it should be taught in public schools, a now practised in the normal schools; the introduction, testing and practical success of class instruction in the free evening drawing classes, on a graded plan of instruction, together wit the general teaching of drawing in a large proportion of the day schools in the State, — all show that the subject of industrial drawing has really become incorporated into the public school system.

The act of the Legislature which called forth this development was passed and became law in May, 1870; and it seems t me that the work which has been above referred to shows tha er somewhat difficult circumstances it has been effectively ied out, up to a point which has placed it beyond the char-r of an experiment.

Respectfully submitted.

WALTER SMITH,
State Director of Art Education.

E.

AN FOR FURNISHING FREE TEXT-BOOKS ADOPTED IN FALL RIVER.

BY

LIAM CONNELL, Jun., SUPERINTENDENT OF SCHOOLS.

REPORT.

h, 1873, the Legislature passed the following law
cities and towns to furnish pupils in the public
h text-books: —
ty by an ordinance of the city council, and any town
te, may authorize the school committee to purchase
for use in the public schools, said text-books to be
ty of the city or town, and to be loaned to pupils
regulations as the school committee may provide."
nber of the same year, the city council of Fall River
ordinance authorizing the school committee to pur-
books for use in the public schools in accordance with
ove quoted. A few days after the passage of this
the school committee voted that in future they would
t the expense of the city all text-books to be used in
schools, in accordance with the provisions of law and
nce of the city relating thereto.
owing regulations were adopted by the school com-
elation to the subject: —

hers shall label with some appropriate inscription all text-books,
them as city property.
shall order, in writing, the number of each kind of text-book
supply needed from the superintendent, who shall thereupon
ame, and charge them to the teacher ordering them, in a book to
im for the purpose.
shall keep an account of the text-books and other articles
ch pupil; and in case of loss or undue injury they shall require
rticle to be replaced at once.
shall account to the superintendent, at the close of each school
text-books and supplies furnished them by him; and, in case of
rticle by their neglect, they shall be required to make it good.
may allow their pupils to carry their books home for study, if
ment it is necessary.
pupils to mark upon or otherwise deface any book furnished by
st be regarded as a serious offence."

The superintendent was by vote empowered to make
purchase in behalf of the school committee, and as far as p
ticable he was to buy books from publishers, so as to sav
intermediate profits. He was also further instructed by vot
procure stationery and all school supplies necessary for teac
in teaching, as well as all articles considered needful for pu
in the preparation of their lessons. The schools by this arra
ment became absolutely free from cost to families as such,
this item of school expense, like all others connected with
carrying on of our common-school system, was assumed
borne by the tax-payers.

In April, 1874, the system went into operation. The p
tical question to be considered then was, how best to make
introduction. Should it be effected by classes, as they v
promoted, or should a complete and instantaneous change
made? After much deliberation it was decided to make
change gradually, that is, by classes as they should be promo
to higher books. Any pupil, however, whose books had bec
too poor for longer use, was supplied also at this time with th
belonging to the city. By this arrangement, it was thought,
confusion and excitement were created in the schools, t
would have been experienced if the introduction had b
completed all at once. It also had the advantage of giv
more time to perform the labor consequent upon the char
and at the same time it kept down to a lower point the expe
to the city for the first year.

No difficulty was encountered in making the transition f
one system to the other in this way. Those children who
suitable books of their own were permitted by their parent
use them. There was a very general feeling in favor of the n
plan in the city, and no one seemed disposed to put any obsta
in the way of its successful working.

The books and supplies are kept in the rooms of the sch
committee, in the charge of the superintendent, who, with
aid of a clerk, distributes them to the schools on receipt o
written order from the respective teachers. No goods
delivered without such an order, and it must designate
number and kind of books or other articles desired, the sch
house and the particular room in which they are to be used,
must be signed by the teacher to whom they are to be char
in accordance with the regulations above quoted. Teach

their orders for supplies to the superintendent, by
of their pupils, who receive and deliver the articles
not too bulky. Large packages are sent to the
expressman. The following is the form of order
nished teachers for this purpose : —

Fall River, Mass.,..*18*

.................................*Supt. of Public Schools.*

end me the following Text-Books and Articles for use in

ool kept in..

g, Room No...................................

....

....

....

....

....*Teacher.*

rs on being filled are checked and filed, and at a
ime the respective accounts of the teachers are
the articles ordered and delivered.
se of each school term, agreeably to the regulations
the school committee, teachers are required to
all the books and supplies furnished them ; and at
s the several accounts are examined and closed.
es which have been used up in school-work during
e charged off, and all those fit for further use are
w account.
achers of the different grades a separate account-
pt. The large number of text-books and other
ired in the higher schools, compared with the number
the lower ones, makes the adoption of this expe-
le, so as to simplify the ruling in the account-books,
e labor in making entries therein.
ing the accounts, it is observed that a particular
not accounted for all the text-books furnished, or
lavish in ordering supplies, he is at once called
e an explanation of the affair ; and, in case of miss-

ing articles, he is expected to replace them, if lost throug neglect of his. By holding teachers to a strict account, way, for a proper care and use of property furnished them is but little danger of an extravagant or wasteful use The care exercised by them in this matter has been ver factory, and in but few instances have they found it ne to replace a missing article, and as a matter of fact b are lost.

Above, a description, in brief, has been given of th accounts are kept by the superintendent with each teache the regulations governing the subject of free text-books ers are required in turn to keep an account of the boo other articles furnished each individual pupil. The fol will illustrate how this is done: —

On receiving text-books from the superintendent, and loaning them to pupils, teachers are required to paste c book the following label, which, when properly filled ou designate not only the school-building and the room to each book belongs, but the particular pupil also to whom loaned: —

CITY SEAL.

PUBLIC SCHOOLS.

THIS BOOK BELONGS TO

THE CITY OF FALL RIVER.

IT IS LENT TO THE TEACHER OF

.... GRAMMAR SCHOOL.

Room No. .... *Book No.* ....

☞ Books must be accounted for to the Superintendent by the teachers at the close of each term.

Teachers may allow pupils to carry their books home for study; but in case of loss or material injury the book must be replaced at once by the pupil.

To mark upon or otherwise deface any book furnished by the city must be regarded as a serious offence.

Teachers shall be held responsible for the proper account and care of books.

These labels are furnished to teachers, and the work o ing them on the books is not expected to be done in hours.

tributing these books, teachers number their pupils
ee, four, etc., to fifty, if they have as many in their
to pupil number one they loan book number one;
ber two, book number two; and so on. The num-
ach pupil may or may not designate his rank in
and, as a rule, it is better that it should not. If
s of text-books are used by the same pupil,—for
eading-book, an arithmetic, a geography, a history,
eading-books are numbered one, two, three, etc., as
arithmetics, geographies, histories, etc., are num-
me way, one, two, three, etc., to fifty, if necessary;
number one the teacher gives reading-book num-
hmetic number one, geography number one, etc.,
her pupils, the books bearing a number correspond-
mber by which he as a pupil is designated in keep-
nt. In well-graded schools this method of keeping
of books by teachers is both simple and effective.
which names are written in the school register is a
number pupils.

ed and high schools many kinds of text-books being
occasioned by the great diversity of subjects taught,
ation in keeping the account is necessary. In these
ollowing plan is generally adopted by our teachers:
k is procured, and prepared as follows: at the left-
each page a marginal line is ruled down the page a
tance from the left-hand side to allow for writing
pupils. From this line to the right edge of the
e drawn parallel to the first, and about three-eighths
part. About an inch from the top of each page a
drawn. Between this line and the top of page, and
parallel lines drawn down the page, the names of
kinds of text-books supplied to pupils are written.
ames of pupils are written in the place intended
teacher inserts on the same horizontal line with
d under the appropriate headings, the numbers of
text-books loaned him. In these schools it is dif-
each pupil all the text-books he uses, numbered to
with his individual number as a pupil, i.e., the order
name appears on the register.

ove way of keeping the account, a teacher can tell
which pupil he should hold responsible for any book
lost or damaged.

In supplying pupils with pens, pencils, and all such ar no entry is made against each name. The account is kep more general way. For instance, in our grammar schoo estimate that a gross of pens is sufficient to last a sch forty pupils for a term of ten weeks in their ordinary s work, and that in no case should it exceed two gross. expect a hard lead-pencil such as we supply (Dixon's last a pupil, in grammar school, one term of ten weeks in his ordinary work. In the High School we limit our pup the average to two lead-pencils per term, — one for ord work, the other for drawing. We have rarely been called to exceed these limits in supplying our pupils, and with watchfulness but little if any necessity for it exists. Tea at the beginning of each term see that each pupil is su with a pencil and a pen, and he is held to a proper ca use of them. By many teachers these are collected afte exercise in which they are used.

In the grammar and high-school grades we expect a text to last from three to four years on the average when in co use. In the lower grades, and especially in the lower pr classes, books do not last as long, — on the average not over one year. By teachers who are watchful, and who on a proper care and use of all school supplies by their pu better record than this even is obtained. This, however, reached because the articles are sparingly dealt out. It otherwise; for every thing needed, both by teachers and is furnished in great abundance. A judicious economy, ever, is required and insisted upon in the use of all supplies.

In keeping the accounts it is immaterial whether the s above described is used or not, provided some plan is ad whereby the individual accountability of teachers and pu secured. Whatever system is used, it is very desirable t should be simple and effective, and so arranged that but time will be required in making entries.

Having dwelt on the practical details of the system o text-books, I wish now to say a few words concernin advantages it possesses over the old way. What are the a tages?

In partially answering this question I present, first, th lowing statistics, showing the cost of text-books, incl apparatus, etc., to the city, each year, since the f the system in 1874. The number of pupils enrolled ols, and the average daily attendance, are also given e years.

of Text-Stationery, tc.	Average Attendance.	Enrolment.	Cost per Capita on Average Attendance.	Cost per Capita on Enrolment.
261 90	4,505	9,062	$2.49	$1.24
288 15	4,555	9,988	1.16	.53
370 65	4,875	8,864	.89	.48
342 51	5,597	9,376	.95	.57
425 60	5,727	9,604	.95	.56
966 58	5,650	9,155	.70	.43
609 02	5,845	9,363	1.13	.71
264 41	36,754	65,412	$1.18 Av.	$0.64 Av.

ining the above figures it will be noticed that our lay for books was in the year 1874, when the intro s made. It should also be borne in mind that at the e year 1880 we had a full stock of supplies in our e value of which could not be less than six thousand n addition to that, the cost of the books used in our hools is included in the above, in part, while the tendance and enrolment, in the table, represent only hools. Yet, without making these deductions, the st per capita is but $1.18 on the average daily attend- but sixty-four cents on the enrolment. It is doubted parent for a series of years can in the usual way sup- with all the text-books and stationery necessary for k, for double the money.

lowing are some of the reasons which contribute to ion in the cost: —

s and stationery are purchased at wholesale rates, on rms known to the trade.

s are used by successive classes till they are worn out. are better cared for, because they are charged to the d for that reason he is ever on the alert to see that properly cares for, and makes a legitimate use of, his ıpils feel that they are using city property, that their an interest in its preservation, and that if they maliciously mutilate, destroy, or lose any article furnished th they will be required to make the damage good. Under system of watchfulness books last much longer than w they were owned by pupils.

Another advantage which this plan has over the old is the following: Books and stationery are furnished ev pupil as soon as needed. This item is of considerable imp tance, for under the old system it frequently happens when classes are formed, or promotions made, that some pupils can get the books required till pay-day. This delay retards work of the whole class. By the free text-book system, on first day of each term every pupil can be supplied with ev article he needs; lessons can be assigned at once, and work of the schoolroom entered upon without needless de Teachers feel a greater freedom, also, in making promoti because they have the necessary books to supply to the pu they deem fit for advancement.

Another advantage: The child of wealth is put on the s plane with the child of poverty. No odious distinction exists between them, so far as the ownership in the books t study is concerned.

Again, this plan favors variety in the use of text-books, w out inconvenience or increased cost. Two series of readers be successfully used at the same time by having one school from one series, and another school from another; and, a each has been read sufficiently, the books can be exchanged read by the other schools, and thus give variety without a tional cost. What is true of readers is true of any other te book.

Another advantage is increased attendance at school. noticing the statistics above, it will be observed that the aver daily attendance has yearly increased since the adoption of text-books. During the seven years the enrolment has creased but 301, while the average attendance has gained 1, In other words, the enrolment has increased, in the seven ye but two per cent, while the average attendance has gai twenty-seven per cent. This result is due almost entirely free text-books.

On this topic, the school committee, in their report 1878–79, speak as follows: —

ne years all text-books and stationery used in schools have been
y the committee at the city's expense. When books were pro-
rents the cost was cost to the city through its families; it is now
city through the tax-payers. The difference in the mode of dis-
e expense secures a much-needed relief to the poor. The princi-
l in the new mode is the fundamental principle on which all free
based, and which is now for the first time fully carried out.
e bright children in all our schools are children of the worthy
hout free schools they could not be educated; without free text-
could not remain in school as long as many of them now do.
ent is not a theoretical one. Investigation has been made of the
school attendance of a small annual expense, corresponding in
e to the expense of text-books; and official statistics have been
These statistics have been recently gathered together by Mr.
Sprague, with the following results: In Connecticut a rate-bill of
e dollars was formerly paid by each child. In 1868 the rate was
The actual increase of school attendance the next year was six
upils, with no perceptible increase of population; and the follow-
ere was an additional increase of five thousand. In New York
l amounted to about $2.75 a year. The increase of attendance
s abolition was twenty-two thousand the first year, fifty thousand
year, and seventy-eight thousand the third year. In California
s $2.50 for the school year. The increase of attendance following
n was six and a half per cent.
atute allows no option in respect to such of the poor as are un-
ish themselves with books. But such a partial supply puts a kind
pon poverty, to which many are exceedingly and not unworthily
It introduces an element of money caste, from which our schools
wholly free. It is undemocratic in principle; and in practice it
le to draw a line between those who are able and those who are
urnish their own books. Bounty is offered to fraudulent pretence
. In forty-eight schools of Massachusetts, last year, sixty per
ents and children claimed assistance on the ground of extreme

the new method of supply, the expense is greatly diminished.
nputation by several towns in the Commonwealth shows a reduc-
ense of seventy-five per cent. In Fall River the cost of supplying
ed pupil with books, pencils, rubber, pens, ink, slates, and cray-
cents per annum. As computed by average attendance the cost
r per annum. Lowell supplies only its indigent pupils, and pays
and dollars a year. Fall River, with twelve hundred more pupils
pplies them all for five thousand dollars a year. Add now the
e fact, unknown to some of our citizens, that under the new
ks are better cared for than of old, and last longer. There is a
k-keeping account of them. When given out they are charged to
: she is held responsible for preservation and careful use; she is
render an account of the books every term, and her account is
r comparison. Her constant supervision is much more effective
-care of many parents. The books are used by generation after

generation of scholars, until fully worn out. Under the old system each generation supplied itself anew, and half-worn cast-away school-books were encumbering every home.

"School-work now begins promptly and goes on steadily, because books and stationery are constantly ready. Under the old system many children were wont to come without the needed book, or slate, or ink; days, and even weeks, passed by before the whole class was supplied. Not seldom pupils were kept from school altogether, because it was not immediately convenient to parents to supply their need; time was always wasted, and progress hindered. By the new system the effective term of school-life is manifestly lengthened.

"In the judgment of some, it were better to furnish books only to scholars in the lower grades of study; in the last years of grammar-school life and in the high school they should furnish their own. In part the judgment rests on misapprehension. The saving of expense would not be so great as supposed. In first cost books used in the higher grades are more expensive; but they are not so soon worn out, and a smaller number of them is required.

"The committee confidently believe it to be for the best interest of the community and the Commonwealth to give every possible facility and encouragement at precisely this point; to use all available means to prevent the dropping out of scholars from the higher grades of school. With a population like ours there is constant tendency to shorten the term of school-life: the resulting evils are many and great. We find cause for congratulation in the fact that in recent years the average term of school-life has been lengthening."

In reflecting on this subject it seems strange that legislation on this point should have been delayed so long. It is true, that previous to this enactment indigent pupils could be supplied with books at the public expense; but this method of furnishing them engendered a caste feeling in the schools, where it never ought to exist, and subjected the child of the worthy poor to an invidious comparison with his more opulent classmate, because the book his poverty compelled him to use was labelled "City property." This comparison is hurtful alike to both classes.

Now, inasmuch as an educated people is necessary to good citizenship, and to the prosperity and perpetuity of our republican institutions, it is the duty of the State to see that every child, the poor as well as the rich, is furnished with text-books and stationery at the public expense, the same as schoolhouses and land, janitors and fuel, teachers and apparatus, are furnished. There is no argument for one that does not apply with force and pertinence to all. If the term "free schools" any thing, it means free text-books and stationery; and, these articles are furnished at the public expense to all, rm "free schools" is a misnomer.

WILLIAM CONNELL, Jun.

F.

EPORT ON SUPERVISION OF SCHOOLS IN ONTARIO.

BY

DR. J. A. McLELLAN,

INSPECTOR OF HIGH AND NORMAL SCHOOLS.

REPORT.

vitation, Dr. J. A. McLellan, the distinguished in- of the high and normal schools of Ontario, has kindly d me with an interesting and clear statement of the of school superintendence now most successfully em- n that province.

dly publish this paper in connection with the Annual of the Board of Education, hoping that at no distant re will be established an equally complete and efficient of school supervision in this Commonwealth.

J. W. DICKINSON.

TORONTO, Dec. 28, 1881.

SIR, — In accordance with my promise, I send you a few remarks nethod of school supervision which has been in operation in the of Ontario for the last ten years.

say at the outset, that our system of education may be said to be ly national in character, including as it does a systematic gradation ls from the lowest primary school to the university. Our excellent l system, by which our people are secured in the rights and privileges self-government, contributes very largely to the successful working lucational machinery. It is not possible for the central authority to at effective administration requires; it probably would not be wise t were possible. There are some matters that must be left entirely ie control of the central authority (the Provincial Government); others that should be left to the local authorities. In our system judicious co-operation of the two authorities. The Government has ivested the local authorities (county and township councils, and f trustees) with the highest powers consistent with the necessary aim and method, and has used every available means to encourage in local legislation for the support of both primary and secondary n. But the Government (Provincial) reserves as its peculiar func- right to (*a*) determine the qualifications of teachers, (*b*) to prescribe ses of study for the national schools, and (*c*) to make the necessary for the *thorough inspection* of the schools, both primary and y.

Before 1871 the system of township (or "local") superintendents wa
force. The power of appointment was vested in the township councils;
as no special qualifications for the office had been prescribed by the Dep
ment of Education, it not unfrequently happened that men were appoi
who had neither the scholarship nor professional skill necessary to the pro
discharge of their duties. Indeed, it was impossible to secure, for the sc
remuneration available, the required number of "local superintenden
qualified at once by scholarship and professional training. The plan wor
badly. It was better than no supervision, and that is perhaps the best
can be said of it. But in 1871 a change was made which secures the su
vision of the schools by thoroughly qualified professional men, — i.e.,
who have been educated and trained for the profession of teaching. Let
call your attention, briefly, to the following points :—

I. Qualifications of inspectors (or "supervisors"); II. Appointm
and remuneration of inspectors; and, III. Duties of inspectors.

I. By statute the power of fixing the *qualifications* of inspectors rests w
the Department of Education, and no one can be appointed inspector
has not received the requisite certificate from the Department. Under
regulations of the Department, no one is now eligible for the office of coun
town, or city inspector of schools, unless he has obtained a FIRST-CLASS
certificate, which is the highest certificate issued by the Department,
represents (1) high scholarship, (2) professional training, and (3) experie
in teaching.

II. A county inspector of schools is appointed by the county council,
a town or city inspector by the town or city school board. Any coun
city, or town inspector may be dismissed for *misconduct* or *inefficiency* b
majority of the council or board which appointed him; or, by a *two-thi*
vote, he may be dismissed *without cause*. Also, the Lieutenant-Governor (
the recommendation of the Education Department) may dismiss an inspec
for misconduct or inefficiency.

The remuneration of a city or town inspector is determined and provid
for by the board which appoints him. In the case of county inspectors,
school law provides that the amount paid by the county council shall *no*
less than five dollars per school per annum ; and the Educational Depa
ment grants an additional sum of not less than five dollars per school. T
county councils, however, usually give a fixed salary, and provide for
travelling expenses of the inspectors. It is proper to add here that an
spector is obliged to devote his entire time to the duties of his office. T
statute explicitly declares that no inspector shall, during his tenure
office, engage in or hold any other employment, office, or calling.

III. The inspector has control and oversight over the public schools
the muncipality for which he is appointed, and must act in accordance w
the regulations of the Department. He is also subject to such instructi
as may be issued by the Minister of Education from time to time. A cou
inspector must visit every public school under his jurisdiction at least o
each half-year, must devote on an average at least half a day to the exa
ination of the classes in each school (in a graded school, each division
grade is reckoned a school), and must record the results of such exami
tion in a book to be kept for the purpose. Should he discover any thi

ust at once call the attention of the trustees (“school committee”)
r; and, if they refuse or fail to provide a remedy, he may withhold
nment of the school fund which otherwise would be granted to
ection (“district”). The inspector is instructed to make in-
amination in regard to the following (amongst other) subjects : —
commodation and appliances ; school premises ; registers and
ks ; text-books ; organization ; discipline ; promotions ; qualifi-
achers ; methods of instruction ; school libraries.

going is an imperfect outline of a system which has proved very
the supervision of the public schools. In every complete organiza-
ic instruction, supervision, systematic and thorough, is essential.
ers are indispensable; equally so are good inspectors. The
es the school, it is said; in our experience, if the inspector does
e school, he has a mighty influence in making or moulding the
nt the inspector must be a true teacher; he must be a man of
on, of large professional experience, and perfectly familiar with
hods of instruction. It is not his chief duty, of course, to regard
under his jurisdiction as suspicious characters who need the
a severe police; but to see that the regulations for the govern-
anagement of the schools are faithfully carried out, and that
hods of instruction are followed in the national schools which
ly to determine national character and destiny. The really
pector is always found in thorough sympathy with the earnest
teacher, courteously yet firmly pointing out his mistakes, aid-
is difficulties, praising with pleasure, and censuring with regret.
y intimated, one of the greatest defects — if not actually the
the practical working of our educational system was the lack
ool supervision, and therefore I do not hesitate to say that the
f the present system has proved the most important educational
cent years. Instead of a perfunctory discharge of duties for
the former plan, the “local” superintendent had but little
out little sympathy, the proper discharge of the duties of an
demands high literary attainments, long professional experi-
entire consecration of time and energy to the work. By the
m the schools in each municipality are placed under the super-
ontrol of an officer whose duty and ambition it is to see that all
together to promote the efficiency of the schools under his juris-
standard of education is thus raised, and its quality improved;
ool are introduced rational methods and wise discipline; weak
oticed and gently corrected; irregularities are checked, and
s of teaching banished from the schoolroom; in a word, every
le to have the great work of education based and carried on
conception of the moral and intellectual nature of man. Under
tances, the teacher knows that his work comes before one on
ent he can implicitly rely. Knowing that the results of indif-
ziness, or slovenly teaching, or incompetency in any form, can-
e searching eye of his inspecting officer, even the laggard is
o some semblance of life. Or, if he remains untouched by the
ower, he must speedily give place to more able or more earnest

men. On the other hand, the truly able and devoted teacher, knowing
his zeal, ability, and industry are sure to receive a just acknowledgme
encouraged to persevere in his good work, and to strive to qualify hi
yet more thoroughly for his high vocation.

Trustees, too, are more confident in the exercise of their powers and
earnest in the discharge of their duties when they know that within
reach they can secure the advice of a competent officer; and when, o
occasions of his periodical visits, they learn something of the charact
the work done in their schools, and are stimulated to use all avai
means for their improvement. The people have a guaranty that, u
the control of an experienced officer, their school system, which is sust
at an immense expenditure and on which the public weal so largely dep
is rapidly reaching a high degree of practical efficiency, and that, too,
out the sacrifice on their part of any rights or powers or privileges.
lastly, the Government can expend its large grants for the education o
rising generation with confidence and security, and at the same time
justice to all, only when it possesses such information and data as syste
inspection can supply.

In conclusion, I reiterate that our system of thorough supervision
proved of incalculable advantage to the cause of public education.
system of education is theoretically, I think, almost perfect in its orga
tion; and under the stimulating influence of this great reform it is ra
approaching a degree of efficiency which will leave it unsurpassed, pe
unrivalled, among the nations. There was of course, on its first esta
ment, the usual outcry attendent upon great reforms. The cry of "Ce
ization," "Trampling on vested rights," etc., was vigorously raised; and
ravings about "tyranny" and "impracticable schemes," and predic
of failure, fell from the lips of many a demagogue. But the event has
fied the predictions; and now the wildest and most reckless demag
amongst the uncircumcised Philistines who would make political capita
of the nation's expenditure for the development of the nation's life doe
venture to question the magnificent results of the new system of inspec
or to recommend a return to the system which it has superseded.

I must express my regret that the pressure of work upon me at this
has prevented me from placing this matter before you with the force
clearness which its importance demands, and which the facts of our ex
ence would justify. If, later on, I can supply any thing further which
be of use, I shall be glad to do so. Meantime I hope that the gran
COMMONWEALTH of Massachusetts — to which we are indebted for so
the best features in our system of education — will soon be able to bo
a system of supervision even more efficient than ours, and, true to he
toric past, continue to remain a model in every thing that pertains t
EDUCATION OF THE PEOPLE.

Yours very truly,

J. A. McLELL

The Hon. J. W. DICKINSON

AN ABSTRACT

THE SCHOOL-RETURNS MADE BY THE SCHOOL-COMMITTEES OF THE SEVERAL TOWNS AND CITIES IN THE COMMONWEALTH, FOR THE SCHOOL-YEAR 1880–81.

BARNSTABLE COUNTY.

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Barnstable . .	4,250	$2,649,945	25	666	452	781	2	94	474	628	571	·90	25
Brewster . .	1,144	1,015,044	7	211	137	233	4	27	156	196	169	·81	7
Chatham . .	2,252	584,866	13	417	231	455	4	67	231	338	283	·84	13
Dennis . . .	3,290	1,140,485	13	571	377	649	3	118	367	545	462	·84	13
Eastham . .	692	207,403	3	140	85	121	–	6	83	95	88	·90	3
Falmouth . .	2,422	2,961,906	14	386	229	411	1	50	231	351	280	·80	15
Harwich . .	3,265	938,290	15	646	492	724	–	179	545	611	511	·84	15
Mashpee . .	347	112,630	2	64	46	72	–	8	46	63	53	·84	2
Orleans . . .	1,294	435,515	8	203	126	230	2	43	129	185	162	·87	8
Provincetown .	4,345	1,674,273	16	828	500	906	–	73	490	880	807	·91	19
Sandwich . .	3,544	1,440,550	21	663	447	706	4	–	96	586	517	·88	23
Truro . . .	1,019	241,274	7	180	128	207	1	41	120	172	157	·91	7
Wellfleet . .	1,908	754,561	10	345	–	345	–	45	157	345	308	·86	10
Yarmouth . .	2,173	1,398,544	10	355	–	400	–	55	227	310	269	·87	10
Totals . .	31,945	$15,555,286	164	5,675	3,250	6,240	21	806	3,352	5,305	4,637	·87	170

BERKSHIRE COUNTY.

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Adams . . .	5,593	$2,360,645	20	1,163	684	1,206	–	62	675	888	811	·91	22
Alford . . .	348	268,768	3	64	40	71	1	3	46	[illegible]	[illegible]	[illegible]	[illegible]

Florida . . .	459	141,893	6	116	56	123	2	12	56	103	98	·75	6
Great Barrington .	4,658	2,876,293	22	879	377	819	7	58	438	735	591	·80	24
Hancock . .	642	384,381	7	94	–	115	4	10	62	84	67	·79	7
Hinsdale . .	1,595	707,773	10	425	258	417	14	15	258	390	332	·85	10
Lanesborough .	1,278	586,259	8	275	168	306	2	20	192	239	184	·77	8
Lee	3,939	1,836,559	18	758	511	887	13	80	561	744	640	·86	19
Lenox . . .	2,043	1,253,235	13	416	243	403	3	23	219	412	361	·87	13
Monterey . .	635	229,904	5	120	71	137	6	27	77	83	74	·86	5
Mount Washington,	205	71,322	2	31	20	37	–	9	20	23	15	·65	2
New Ashford .	203	89,038	2	34	26	51	–	3	26	32	27	·84	4
New Marlborough .	1,876	642,595	13	395	310	423	10	16	310	309	233	·75	13
North Adams .	10,192	4,376,887	31	2,168	1,167	2,040	3	127	1,164	1,577	1,479	·93	35
Otis . . .	785	221,095	10	192	119	219	10	30	121	165	155	·90	10
Peru . . .	403	121,464	5	73	40	87	6	7	–	72	54	·75	5
Pittsfield . .	13,367	7,542,618	45	2,521	1,488	2,716	17	196	1,553	1,987	1,774	·89	62
Richmond . .	1,124	470,138	6	268	161	246	9	6	155	203	187	·67	6
Sandisfield . .	1,107	384,593	12	206	144	214	3	34	141	177	148	·83	20
Savoy . . .	715	214,345	7	153	90	160	9	16	87	110	93	·85	7
Sheffield . .	2,204	948,722	14	457	272	518	19	64	270	361	303	·81	14
Stockbridge . .	2,360	2,240,316	10	376	257	404	4	49	274	282	256	·90	11
Tyringham . .	542	243,085	7	120	59	147	2	25	59	115	72	·63	7
Washington . .	492	212,325	6	128	–	131	4	8	77	87	72	·84	6
West Stockbridge .	1,934	723,372	10	441	354	511	3	25	279	322	350	·92	10
Williamstown .	3,395	1,584,006	14	669	402	719	4	43	400	456	443	·81	15
Windsor . .	644	212,311	7	101	58	127	6	10	68	99	85	·86	7
Totals . .	69,049	$34,197,842	352	14,011	7,918	14,567	178	1,048	8,316	11,041	9,694	·88	139

BARNSTABLE COUNTY—CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No. of different female teachers in school-year.	No. of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No. of Schools kept less than six months each.	HIGH SCHOOLS.					
										No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	LENGTH. Months. Days.	Salary of Principal.
Barnstable . .	5	27	10	10	$60 00	$33 18	212–10	8–10	–	1	1	44	Taxation,	9	$900 00
Brewster . .	2	5	3	1	57 50	35 00	51–10	8	1	–	–	–	–	–	–
Chatham . .	3	13	–	–	56 00	24 00	105	8–2	2	1	1	51	Taxation,	9	675 00
Dennis . .	7	10	–	3	57 50	32 00	107	8–4	–	1	1	39	Taxation,	9	540 00
Eastham . .	2	3	1	1	40 00	32 50	21	7	–	–	–	–	–	–	–
Falmouth . .	3	13	4	3	80 85	35 37	117	8–16	–	1	2	23	Part tax,	9	1,000 00
Harwich . .	9	11	3	2	45 00	30 00	105–10	7–10	–	1	1	50	Taxation,	7–10	320 00
Mashpee . .	2	–	2	2	45 00	–	12–10	6	–	–	–	–	–	–	–
Orleans . .	1	8	–	–	88 89	22 85	72	9	–	1	1	53	Taxation,	9	800 00
Provincetown .	3	16	3	3	85 00	29 60	145–10	9–10	–	1	2	84	Taxation,	9–10	950 00
Sandwich . .	4	26	4	3	63 75	30 72	170	8–2	–	1	2	58	Taxation,	10	1,100 00
Truro . . .	3	7	–	–	50 00	22 40	52–15	8–5	–	–	–	–	–	–	–
Wellfleet . .	3	10	2	1	67 66	29 50	81	8–10	–	1	1	58	Taxation,	10	1,000 00
Yarmouth . .	5	7	2	2	71 29	28 71	84	8–8	1	1	1	41	Part tax,	9	900 00
Totals . .	52	156	34	31	$59 83	$30 12	1,337–5	8–3	4	10	13	501	–	–	$8,185 00

BERKSHIRE COUNTY—CONTINUED.

Adams . .	4	23	4	4	$76 11	$38 15	156–5	7–17	–	1	3	43	Taxation,	9–15	$1,500 00
Alford . .	3	3	1	1	29 34	21 34	27	9	–	–	–	–	–	–	–

Florida . .	–	11	2	1	–	20 00	36	6	–	–	–	–	–	–	–
Great Barrington,	8	28	3	3	42 00	34 00	181-5	8-5	1	1	2	80	Taxation,	9	1,300 00
Hancock . .	1	10	2	–	25 00	23 00	42-5	6-1	2	–	–	–	–	–	–
Hinsdale . .	2	14	2	2	43 00	25 09	92-5	9-5	–	1	2	35	Taxation,	6-10	385 00
Lanesborough .	12	10	4	3	31 00	26 00	56-7	7-1	–	–	–	–	–	–	–
Lee	4	20	3	3	65 50	30 13	164-13	9-3	–	2	2	141	Taxation,	10 4	1,400 00 160 00
Lenox. . . .	3	12	–	–	49 33	28 36	88	7-7	–	1	1	44	Taxation,	6-5	800 00
Monterey . .	1	10	1	–	18 00	19 00	40-10	8-2	–	–	–	–	–	–	–
Mt. Washington .	1	2	–	–	24 00	20 00	12-5	6-3	1	–	–	–	–	–	–
New Ashford .	1	3	–	–	20 00	19 55	16	8	–	–	–	–	–	–	–
New Marlborough,	6	13	–	–	23 34	21 20	107-5	8-5	–	–	–	–	–	–	–
North Adams .	4	36	2	2	89 41	35 42	279-2	9	–	1	3	132	Taxation,	9-10	1,600 00
Otis	1	13	1	1	20 00	19 20	61	6	–	–	–	–	–	–	–
Peru	–	9	1	–	–	18 66	36-15	7-7	–	–	–	–	–	–	–
Pittsfield . .	7	65	9	5	69 43	33 17	415-10	9-5	–	1	4	96	Taxation,	10	1,500 00
Richmond . .	4	3	–	–	28 35	22 00	47-10	7-15	1	–	–	–	–	–	–
Sandisfield . .	6	14	–	–	30 06	21 66	79-5	6-18	2	–	–	–	–	–	–
Savoy . . .	3	10	–	–	26 11	19 42	51-6	7-7	–	–	–	–	–	–	–
Sheffield . .	5	20	3	2	30 00	22 92	115-15	8-5	–	1	1	53	Taxation,	9	400 00
Stockbridge .	1	10	3	3	110 00	31 20	83	8-6	1	1	2	79	Taxation,	9-15	1,100 00
Tyringham . . .	–	9	2	2	–	21 00	47	6-14	1	–	–	–	–	–	–
Washington .	–	9	–	–	–	19 00	41-12	6-19	–	–	–	–	–	–	–
W. Stockbridge .	6	8	–	–	39 00	28 12	89-19	9	–	–	–	–	–	–	–
Williamstown .	6	17	5	–	31 00	25 63	122-15	8-15	–	1	1	38	Taxation,	9	432 00
Windsor . .	1	8	1	1	16 67	14 46	42-10	6-8	–	–	–	–	–	–	–
Totals . .	99	429	55	39	$41 20	$27 24	2,848-2	8-2	9	11	21	741	–	–	$10,577 00

BARNSTABLE COUNTY — Continued.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880-81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expense of printing reports, etc.	Expense of sundries,—books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Barnstable .	$10,999 71	$9,000 00	$353 93	–	$42 00	$409 16	$645 12	–	$749 50	–
Brewster .	2,454 24	2,200 00	100 00	–	16 00	100 00	–	–	130 20	–
Chatham .	3,758 00	3,000 00	209 00	–	30 00	254 00	–	$88 00	177 00	–
Dennis .	5,272 88	5,000 00	50 00	$75 00	25 00	65 57	–	–	185 00	$50 00
Eastham .	1,100 00	900 00	50 00	50 00	8 00	20 00	–	–	75 00	–
Falmouth .	5,693 12	4,444 25	217 41	–	21 00	213 00	–	582 49	214 97	–
Harwich .	4,948 73	4,000 00	125 00	–	40 00	75 00	–	651 33	148 65	–
Mashpee .	500 00	500 00	15 00	–	10 00	–	–	–	–	14 00
Orleans .	2,931 19	2,400 00	105 00	100 00	16 00	–	–	270 19	104 19	–
Provincetown .	7,733 41	6,754 30	350 00	350 00	10 00	50 00	9,500 00	–	120 13	–
Sandwich .	8,567 35	7,400 00	300 00	300 00	41 00	70 22	–	185 39	–	–
Truro .	1,694 25	1,400 00	97 00	50 00	18 00	15 00	–	250 00	140 00	–
Wellfleet .	4,235 29	4,200 00	135 00	–	24 00	57 03	–	300 00	52 00	–
Yarmouth .	3,493 49	3,800 00	90 00	–	35 00	84 40	–	–	297 79	–
Totals .	$63,381 66	$54,998 55	$2,197 34	$925 00	$336 00	$1,413 38	$10,145 12	$2,327 40	$2,394 43	$64 00

BERKSHIRE COUNTY — Continued.

Adams .	$22,674 38	$8,538 50	$650 00	$550 00	$25 00	$478 17	$12,858 28	–	$124 43	–
Alford .	520 59	578 00	25 00	–	10 00	–	–	–	5 00	–

Egremont . .	1,275 30	1,000 00	48 50	–	10 00	15 00	3,804 00	–	–	–
Florida . .	538 88	538 88	20 00	–	9 18	–	–	83 04	36 96	$15 25
Gt. Barrington,	8,411 60	7,500 00	177 13	–	–	218 00	–	–	–	–
Hancock . .	798 80	800 00	47 58	–	3 50	5 84	–	–	–	–
Hinsdale . .	2,541 73	2,500 00	55 00	–	–	15 61	–	–	70 57	–
Lanesborough .	1,257 79	1,200 00	65 00	–	6 00	21 18	–	–	36 98	50 00
Lee . . .	7,309 47	7,260 00	221 75	–	20 00	279 24	–	290 00	727 00	–
Lenox . .	11,296 50	3,300 00	121 50	–	10 00	–	7,465 00	100 00	300 00	–
Monterey .	700 00	800 00	49 00	–	3 50	19 00	–	–	22 00	–
Mt. Washington,	353 00	150 00	15 00	–	5 00	–	–	–	–	–
New Ashford .	102 00	102 00	20 00	–	6 00	15 45	–	–	4 00	–
New Marlboro',	2,000 00	2,000 00	57 75	–	10 00	–	–	–	–	–
North Adams .	16,930 77	16,092 98	150 00	–	118 50	417 32	–	–	837 79	–
Otis . .	1,000 00	1,000 00	59 75	–	10 50	9 77	475 00	160 00	15 00	–
Peru . .	746 00	600 00	18 00	–	4 00	–	–	–	–	–
Pittsfield . .	31,114 86	25,100 00	1,300 00	1,300 00	160 00	2,292 89	–	1,324 21	937 76	–
Richmond .	1,000 00	1,000 00	61 00	–	25 00	–	–	–	60 00	–
Sandisfield .	1,531 42	1,200 00	45 00	–	3 00	10 00	–	–	–	149 00
Savoy . .	557 50	500 00	38 00	–	9 00	8 50	–	–	2 00	185 00
Sheffield . .	3,479 20	2,500 00	181 72	–	14 00	60 44	–	–	55 30	–
Stockbridge .	5,031 63	4,500 00	219 00	–	28 00	–	–	–	–	–
Tyringham .	750 00	600 00	30 00	–	12 00	–	–	47 23	10 00	54 00
Washington .	688 75	650 00	33 75	–	5 00	–	–	–	–	–
W. Stockbridge,	3,163 36	3,000 00	43 00	–	–	85 70	–	–	–	–
Williamstown .	4,576 88	4,500 00	90 00	–	23 64	–	–	–	226 63	–
Windsor . .	670 50	400 00	25 00	–	6 00	1 00	–	–	8 30	–
Totals . .	$143,033 08	$105,913 86	$4,047 18	$1,850 00	$570 57	$4,275 39	$28,102 28	$2,030 39	$3,796 73	$453 25

BARNSTABLE COUNTY — Concluded.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS.							
				Number.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Barnstable . .	$1,500 00	–	$335 96	–	–	–	–	–	–	$216 74	$54 18
Brewster . .	–	–	–	–	–	–	–	–	–	220 69	20 00
Chatham . .	–	–	65 00	–	–	–	1	8	$180 00	241 95	–
Dennis . . .	–	–	272 88	–	–	–	–	–	–	207 56	–
Eastham . .	–	–	–	–	–	–	–	–	–	214 14	–
Falmouth . .	10,000 00	$600 00	215 82	1	23	$250 00	–	–	–	184 24	–
Harwich . .	–	–	111 67	–	–	–	–	–	–	265 26	–
Mashpee . .	–	–	46 25	–	–	–	–	–	–	204 39	–
Orleans . .	–	–	30 84	–	–	–	–	–	–	220 69	–
Provincetown .	–	–	–	–	–	–	–	–	–	238 00	–
Sandwich . .	3,500 00	150 00	282 98	1	–	–	–	–	–	208 14	50 00
Truro . . .	–	–	31 25	–	–	–	–	–	–	215 81	–
Wellfleet . .	–	–	–	–	–	–	–	–	–	235 61	–
Yarmouth . .	16,000 00	900 00	139 76	–	–	–	–	–	–	180 13	–
Totals . .	$31,000 00	$1,650 00	$1,632 41	2	23	$250 00	1	8	$180 00	$3,503 35	$124 18

BERKSHIRE COUNTY — Concluded.

Adams . . .	–	–	–	–	–	–	–	–	–	$261 82	–
Alford . .	–	–	$15 67	–	–	–	–	–	–	206 24	–

Florida . .	–	–	–	–	–	–	–	–	–	211 12	–
Great Barrington .	960 71	57 64	132 14	–	–	–	1	17	–	229 52	–
Hancock . .	200 00	12 00	–	–	–	–	–	–	–	211 71	13 00
Hinsdale . .	500 00	14 82	–	–	–	–	–	–	–	233 75	–
Lanesborough .	1,000 00	107 63	–	–	–	–	–	–	–	222 41	–
Lee . . .	1,608 33	86 60	–	–	–	–	1	8	60 00	226 68	–
Lenox . . .	–	–	–	1	21	$1,200 00	1	10	400 00	190 58	–
Monterey . .	612 01	36 72	90 55	–	–	–	–	–	–	211 79	–
Mt. Washington .	100 00	6 00	–	–	–	–	1	3	25 00	203 11	–
New Ashford .	–	–	15 67	–	–	–	–	–	–	203 01	15 45
New Marlborough,	5,000 00	327 52	62 38	1	–	–	1	15	120 00	239 71	–
North Adams .	–	–	184 99	–	–	–	1	25	500 00	310 73	–
Otis . . .	–	–	49 95	–	–	–	–	–	–	218 03	–
Peru . . .	370 50	22 23	30 00	–	–	–	–	–	–	208 59	–
Pittsfield . .	–	–	–	–	–	–	4	225	9,500 00	229 59	229 59
Richmond . .	–	–	54 36	–	–	–	–	–	–	220 30	–
Sandisfield . .	1,290 00	77 40	32 27	–	–	–	–	–	–	221 75	–
Savoy . . .	1,297 00	77 82	33 81	–	–	–	–	–	–	212 09	–
Sheffield . .	1,600 00	90 00	272 33	–	–	–	–	–	–	243 41	–
Stockbridge . .	4,000 00	350 00	–	–	–	–	3	20	2,400 00	184 33	40 00
Tyringham . .	–	–	23 00	–	–	–	–	–	–	211 90	–
Washington . .	–	–	38 72	–	–	–	–	–	–	212 76	–
West Stockbridge,	–	–	59 93	–	–	–	–	–	–	244 29	–
Williamstown .	–	–	–	–	–	–	2	125	7,000 00	212 18	43 00
Windsor . .	587 95	35 27	30 00	–	–	–	–	–	–	211 82	50 00
Totals . .	$19,316 99	$1,310 64	$1,225 64	2	21	$1,200 00	16	493	$20,259 00	$7,067 06	$426 04

BRISTOL COUNTY.

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 5 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Acushnet . .	1,105	$587,100	6	206	–	224	3	19	124	169	141	·83	6
Attleborough . .	11,111	4,934,941	39	1,866	1,029	2,058	25	85	1,108	1,541	1,359	·88	44
Berkley . . .	927	391,650	7	150	94	158	3	28	83	118	98	·83	7
Dartmouth . .	3,430	1,789,600	19	506	298	516	13	49	292	400	329	·82	20
Dighton . . .	1,791	703,317	10	305	196	373	1	37	226	270	232	·86	10
Easton . . .	3,902	3,245,743	20	807	510	922	11	103	489	822	666	·81	24
Fairhaven . .	2,875	1,370,073	10	448	332	485	4	57	304	406	360	·88	13
Fall River . .	49,006	39,650,761	121	9,763	5,636	9,363	–	410	5,618	6,559	5,845	·89	154
Freetown . .	1,329	606,490	7	199	120	264	6	20	238	214	163	·75	8
Mansfield . .	2,765	1,079,623	13	498	–	542	4	42	343	457	401	·88	13
New Bedford . .	26,875	27,115,322	76	4,083	–	4,359	–	251	3,319	3,726	3,505	·92	103
Norton . . .	1,732	826,275	7	299	145	291	5	15	152	194	140	·72	7
Raynham . .	1,681	872,091	10	326	215	309	4	16	201	253	225	·89	10
Rehoboth . .	1,891	777,810	15	312	197	367	8	41	192	288	251	·87	15
Seekonk . .	1,228	693,305	8	208	132	234	5	11	138	173	156	·90	8
Somerset . .	2,006	1,026,060	9	389	254	424	11	32	241	334	295	·88	10
Swanzey . .	1,356	705,300	10	220	145	246	4	12	155	187	163	·87	10
Taunton . .	2,898	15,547,611	63	3,464	1,831	3,568	–	201	1,800	2,824	2,594	·92	77
Westport . .	21,213	1,371,475	21	535	317	630	19	78	350	475	385	·81	21
Totals . .	139,121	$103,294,547	471	24,584	11,451	25,333	126	1,507	15,378	19,410	17,308	·89	560

Gay Head . .	161	14,691	1	35	28	21	–	2	14	40	36	·90	1
Gosnold . . .	154	201,165	1	23	14	21	–	4	11	15	10	·65	1
Tisbury . . .	1,516	673,944	9	199	140	231	3	32	134	191	169	·88	9
Totals . . .	4,305	$3,190,798	25	602	382	695	11	84	360	611	544	·89	26

BRISTOL COUNTY — CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No. of different female teachers in school-year.	No. of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No. of Schools kept less than six months each.	HIGH SCHOOLS. No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	Length. Months. Days.	Salary of Principal.
Acushnet . .	4	5	3	1	$37 31	$30 74	54	9	–	–	–	–	–	–	–
Attleborough .	8	55	18	15	84 44	37 94	336-15	8-13	–	2	5	89	Taxation,	9-15	$2,200 00
Berkley . .	2	11	3	3	32 00	25 29	59-5	8-10	–	–	–	–	–	–	–
Dartmouth .	3	22	4	4	36 22	23 57	166-5	8-15	–	1	1	38	Taxation,	9	600 00
Dighton . .	5	14	8	6	34 00	31 40	80	8	–	–	–	–	–	–	–
Easton . .	1	25	5	4	150 00	40 60	194-14	9-15	–	1	2	100	Part tax,	9-15	1,500 00
Fairhaven . .	1	18	5	3	100 00	28 00	85-10	8-11	–	1	3	103	Taxation,	9	900 00
Fall River. .	10	144	20	19	126 50	44 36	1,201	9-18	–	1	8	371	Taxation,	10	2,000 00
Freetown . .	3	9	3	1	33 00	28 00	61-5	8-15	–	–	–	–	–	–	–
Mansfield . .	3	12	4	3	53 23	30 84	108-3	8-6	1	1	1	42	Taxation,	9-15	700 00
New Bedford .	7	108	24	24	134 30	51 74	760	10	–	1	10	250	Taxation,	10	1,700 00
Norton . .	3	5	4	3	35 38	35 10	61-13	8-16	–	–	–	–	–	–	–
Raynham . .	1	16	9	8	32 00	32 66	80	8	–	–	–	–	–	–	–
Rehoboth . .	4	16	–	–	29 66	29 66	105	7	–	–	–	–	–	–	–
Seekonk . .	–	12	2	1	–	28 25	64	8	–	–	–	–	–	–	–
Somerset . .	8	13	5	5	46 00	31 63	72	8	–	–	–	–	–	–	–
Swanzey . .	2	11	3	1	30 00	27 00	80	8	1	–	–	–	–	–	–
Taunton . .	10	67	12	10	81 54	40 49	630	10	–	1	4	161	Taxation,	10	1,500 00
Westport . .	7	22	3	3	31 00	23 00	178	8	1	1	1	42	Taxation,	9	500 00
Totals . .	82	585	135	114	$83 70	$52 15	4,377-10	9-6	3	10	35	1,196	–	–	$11,600 00

Gay Head . .	1	1	–	–	32 00	16 00	6	6	–	–	–	–	on,	8-10	$510 00
Gosnold . .	1	1	–	–	28 00	28 00	9	9	–	–	–	–	–	–	–
Tisbury . .	7	7	–	–	37 00	22 80	59	6-11	–	–	–	–	–	–	–
Totals . .	15	20	–	–	$36 44	$25 12	172-5	6-18	–	1	2	43	–	8-10	$510 00

BRISTOL COUNTY — CONTINUED.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880-81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expense of printing reports, etc.	Expense of sundries, — books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Acushnet . .	$1,600 00	$1,600 00	$80 00	-	$4 75	$2 59	-	-	$36 26	-
Attleborough .	18,107 24	19,000 00	667 25	-	32 00	84 05	$8,500 00	$5,000 00	450 00	-
Berkley . .	1,450 00	1,450 00	59 00	-	10 00	9 11	1,200 00	26 00	12 00	-
Dartmouth .	5,198 86	4,500 00	151 00	-	34 00	50 00	-	398 86	65 00	-
Dighton . .	2,790 76	2,525 00	106 90	-	14 00	50 00	-	-	108 86	-
Easton . .	8,767 05	8,767 05	234 17	-	50 00	1,366 67	-	660 00	215 83	-
Fairhaven .	4,794 21	4,000 00	206 40	-	21 86	357 58	-	-	436 63	-
Fall River .	123,097 88	89,526 89	2,400 00	$2,000 00	163 88	9,296 77	10,229 00	7,291 80	4,189 54	-
Freetown .	2,187 75	1,800 00	96 00	-	6 00	35 00	-	160 80	89 95	-
Mansfield .	4,807 16	4,500 00	160 00	-	31 50	40 86	1,400 00	-	75 00	-
New Bedford .	76,670 68	71,640 00	2,250 00	2,000 00	143 00	1,322 00	15,140 77	-	1,694 20	-
Norton . .	2,337 31	2,000 00	90 00	-	10 00	117 31	-	-	120 00	$27 00
Raynham .	2,800 00	2,800 00	180 00	150 00	15 00	60 00	-	-	40 00	-
Rehoboth .	3,414 00	3,000 00	100 00	-	37 00	-	-	364 00	50 00	-
Seekonk . .	1,758 22	1,700 00	81 00	-	10 00	13 67	-	-	186 01	-
Somerset . .	3,384 26	2,523 18	109 16	-	25 00	17 85	-	70 00	47 75	-
Swanzey . .	2,211 41	2,120 41	76 00	-	15 00	-	-	-	10 00	-
Taunton . .	43,630 81	39,102 60	1,500 00	1,500 00	150 00	2,000 00	-	1,000 00	2,000 00	-
Westport . .	4,775 00	4,000 00	200 00	-	30 00	30 00	-	200 00	340 00	-
Totals . .	$313,782 60	$266,555 13	$8,746 88	$5,650 00	$802 99	$14,853 46	$36,469 77	$15,171 46	$10,167 03	$27 00

Gay Head .	90 00	90 00	10 00	–	8 50	7 00	–	–	8 00	–
Gosnold . .	80 00	80 00	30 00	–	2 50	–	–	–	9 36	–
Tisbury . .	2,307 82	2,000 00	106 25	–	25 00	5 63	–	$35 51	23 84	–
Totals . .	$6,096 02	$5,320 00	$313 25	–	$81 15	$75 49	–	$35 51	$279 90	–

BRISTOL COUNTY — CONCLUDED.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS.							
				Number.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Acushnet	–	–	$99 21	–	–	–	–	–	–	$219 90	–
Attleborough	$13,700 00	$664 03	773 43	–	–	–	1	25	$275 00	263 83	$65 96
Berkley	–	–	–	–	–	–	–	–	–	214 85	14 90
Dartmouth	2,000 00	90 99	272 97	–	–	–	–	–	–	201 62	–
Dighton	–	–	128 27	–	–	–	–	–	–	229 19	–
Easton	50,000 00	4,000 00	308 75	–	–	–	–	–	–	181 09	45 27
Fairhaven	5,000 00	300 00	158 52	–	–	–	2	30	495 00	193 11	–
Fall River	–	–	–	–	–	–	6	900	10,000 00	–	–
Freetown	–	–	–	–	–	–	–	–	–	221 85	–
Mansfield	1,000 00	60 00	–	–	–	–	1	8	144 00	197 82	50 00
New Bedford	50,000 00	3,000 00	673 66	1	51	$5,200 00	21	277	3,850 00	–	–
Norton	–	–	201 72	1	58	4,560 00	2	24	225 00	227 33	28 00
Raynham	–	–	169 92	–	–	–	–	–	–	230 64	16 00
Rehoboth	–	–	262 01	–	–	–	–	–	–	229 26	–
Seekonk	–	–	174 24	–	–	–	–	–	–	222 45	7 00
Somerset	–	–	–	–	–	–	–	–	–	188 24	22 75
Swanzey	–	–	–	–	–	–	–	–	–	221 74	–
Taunton	8,000 00	800 00	–	1	83	3,200 00	1	30	250 00	–	–
Westport	–	–	244 00	–	–	–	–	–	–	200 62	–
Totals	$129,700 00	$8,915 02	$3,466 60	3	192	$12,960 00	34	1,294	$15,239 00	$3,443 54	$249 88

Edgartown . .	–	–	–	–	–	–	–	–	–	225 56	–
c Gay Head . .	–	–	–	–	–	–	–	–	–	202 54	–
Gosnold . .	–	–	18 00	–	–	–	–	–	–	202 44	–
Tisbury . .	–	–	–	1	60	$200 00	–	–	–	219 52	$3 68
Totals . .	–	–	$35 32	1	60	$200 00	–	–	–	$1,056 01	$3 68

ESSEX COUNTY.

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Amesbury . .	3,355	$1,231,371	18	545	385	639	2	42	385	576	495	·86	18
Andover . .	5,171	3,239,906	21	884	496	902	12	86	473	741	676	·91	25
Beverly . . .	8,445	8,613,650	30	1,441	867	1,407	1	100	846	1,375	1,102	·80	34
Boxford . .	824	589,675	5	135	89	131	1	7	77	98	81	·82	5
Bradford . .	2,643	1,179,375	8	426	227	455	5	68	216	347	314	·90	10
Danvers . .	6,636	3,564,485	21	1,041	720	1,263	15	74	808	1,056	925	·87	27
Essex . . .	1,670	842,505	9	289	197	288	4	24	197	275	236	·86	9
Georgetown . .	2,231	1,086,967	11	407	305	426	10	47	242	396	334	·85	11
Gloucester . .	19,329	8,977,559	75	4,008	2,487	3,999	1	306	2,315	3,403	3,154	·93	87
Groveland . .	2,227	865,007	9	432	262	452	1	28	264	342	305	·89	9
Hamilton . .	935	611,985	4	115	78	103	2	13	79	83	64	·77	4
Haverhill . .	18,475	10,787,088	67	3,500	2,300	3,405	6	232	1,945	2,944	2,492	·84	74
Ipswich . . .	3,699	1,899,530	16	551	448	657	–	87	448	548	475	·87	19
Lawrence . .	39,178	25,349,410	98	6,865	–	6,301	28	356	3,724	4,731	4,480	·94	106
Lynn . . .	38,284	24,992,084	112	6,229	2,450	6,299	–	334	2,607	5,466	4,730	·87	114
Lynnfield . .	686	559,130	3	108	76	113	–	2	76	92	76	·82	3
Manchester . .	1,640	3,398,375	7	259	161	303	–	23	171	243	220	·90	7
Marblehead . .	7,467	3,660,600	19	1,407	825	1,286	–	16	754	1,247	1,086	·87	27
Merrimac . .	2,237	1,099,746	11	384	254	430	4	26	263	374	335	·89	12
Methuen . .	4,392	2,552,062	16	667	396	653	7	61	396	578	513	·89	19
Middleton . .	1,000	518,931	5	159	102	183	4	15	113	138	122	·88	5
Nahant . . .	808	4,694,277	4	111	66	120	–	14	66	104	92	·90	4
Newbury . .	1,566	829,845	7	279	162	277	15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Salem . . .	27,598	23,767,679	82	4,862	2,983	4,491	–	377	2,887	3,320	2,784	·83	89
Salisbury . .	4,079	1,829,835	19	677	414	751	9	80	438	676	573	·85	20
Saugus . . .	2,626	1,428,962	12	484	296	486	3	25	305	447	438	·96	13
Swampscott . .	2,501	2,928,239	10	342	–	386	2	37	303	379	336	·88	11
Topsfield . .	1,165	718,741	5	172	90	168	4	11	83	124	104	·84	5
Wenham . .	889	538,825	5	155	134	166	3	8	131	138	125	·91	5
West Newbury .	1,989	1,001,093	11	341	196	355	5	22	193	293	256	·87	11
Totals . .	244,640	$162,413,423	811	43,028	20,796	42,206	155	2,830	24,001	35,319	30,988	·88	906

ESSEX COUNTY — CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No. of different female teachers in school-year.	No. of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No. of Schools kept less than six months each.	HIGH SCHOOLS.						
										No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	LENGTH. Months.	LENGTH. Days.	Salary of Principal.
Amesbury . .	4	19	4	4	$72 50	$26 00	150-8	8-7	–	1	1	49	Taxation,	9-8		$752 00
Andover . .	1	26	4	2	210 00	39 66	193-10	9-4	–	1	3	88	Not by tax,	9-10		2,000 00
Beverly . .	2	32	6	6	87 50	37 28	296	9-16	–	1	4	138	Taxation,	10		1,250 00
Boxford . .	3	6	3	3	36 50	31 20	41-18	8-7	–	–	–	–	–	–		–
Bradford . .	1	10	–	–	150 00	38 64	73-6	9-3	–	1	2	50	Taxation,	9-7		1,350 00
Danvers . .	6	25	10	5	93 99	31 72	197-3	9-8	–	1	2	89	Taxation,	10		1,200 00
Essex . .	2	8	5	3	61 00	30 00	76-10	8-10	–	–	–	–	–	–		–
Georgetown .	1	10	2	1	105 00	40 00	98-15	9	–	1	2	66	Taxation,	9		950 00
Gloucester . .	4	90	1	32	143 33	36 04	749	10	–	1	5	145	Taxation,	10		1,800 00
Groveland . .	1	11	–	–	75 00	32 00	84	9-6	–	1	1	50	Taxation,	10		750 00
Hamilton . .	–	4	3	–	–	31 00	33	8-5	–	–	–	–	–	–		–
Haverhill . .	5	69	3	3	142 85	52 96	699	9-14	–	1	6	156	Taxation,	9		1,800 00
Ipswich . .	2	18	2	–	125 00	28 00	155	9-14	–	1	2	51	Part tax,	10		1,500 00
Lawrence . .	7	134	15	15	145 00	50 50	980	10	–	1	8	197	Taxation,	10		2,320 00
Lynn . .	8	106	53	36	135 00	51 00	1,136-16	10-3	–	1	6	265	Taxation,	10-5		1,700 00
Lynnfield . .	–	3	2	2	–	29 34	25-15	8-7	–	–	–	–	–	–		–
Manchester .	1	11	6	6	78 94	30	64-9	9-4	1	1	1	39	Taxation,	9-15		750 00
Marblehead .	2	25	6	2	107 60	38 09	225-10	10-5	–	1	2	91	Taxation,	10-5		1,004 50
Merrimac . .	3	11	2	2	63 00	31 00	82-4	7-9	–	1	2	78	Taxation,	9-10		950 00
Methuen . .	3	23	8	6	68 52	36 54	143	8-19	–	1	2	38	Taxation,	9		1,100 00
Middleton . .	–	6	6	5	–	33 77	45	9	–	–	–	–	–	–		–
Nahant . .	2	3	3	3	120 00	56 00	40	10	–	1	1	18	Taxation,	10		1,200 00
Newbury . .	–	7	2	2	–	26 60	62-10	9	–	–	–	–	–	–		–

Rowley . .	1	7	–	–	48 00	22 00	48-8	8-12	–	–	–	–	–	–	–
Salem . . .	6	83	56	46	181 67	53 83	856-18	10-9	–	1	7	176	Taxation,	10-9	2,500 00
Salisbury . .	3	19	2	–	80 00	29 06	155-10	8-4	–	1	2	63	Taxation,	9	900 00
Saugus . .	1	14	5	4	80 00	35 00	112-16	9-10	–	1	2	42	Taxation,	9-10	754 00
Swampscott .	1	12	8	5	100 00	43 33	100	10	–	1	1	33	Taxation,	10	1,000 00
Topsfield . .	–	7	2	1	–	33 00	42-10	8-10	–	–	–	–	–	–	–
Wenham . .	–	5	2	2	–	34 20	45	9	–	–	–	–	–	–	–
West Newbury .	3	11	–	–	51 25	28 36	88	8	–	1	1	38	Taxation,	8	500 00
Totals . .	**87**	**930**	**254**	**219**	**$110 73**	**$41 82**	**7,945-9**	**9-16**	**2**	**26**	**75**	**2,270**	–	–	**$32,830 50**

ESSEX COUNTY — CONTINUED.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880-81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expense of printing reports, etc.	Expense of sundries, — books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Amesbury .	$6,000 00	$5,299 93	$150 00	–	$40 00	$400 00	–	–	$423 14	–
Andover .	10,506 29	9,500 00	430 00	–	50 00	116 75	–	–	410 54	–
Beverly .	19,561 47	15,469 08	64 00	–	55 00	1,286 15	$1,765 66	–	921 58	–
Boxford .	1,635 40	1,000 00	257 35	–	25 00	85 47	–	$118 07	182 21	–
Bradford .	5,199 47	4,800 00	150 00	–	15 00	93 46	–	–	158 21	–
Danvers .	13,400 00	12,300 00	500 00	–	55 00	325 00	–	400 00	300 00	–
Essex .	3,053 15	2,400 00	195 00	–	26 25	74 06	–	–	132 30	–
Georgetown .	4,764 56	4,800 00	190 00	–	50 00	8 25	–	–	75 74	–
Gloucester .	68,445 02	38,587 00	2,000 00	$2,000 00	187 10	2,786 52	20,000 00	–	4,000 00	$1,200 00
Groveland .	4,356 79	3,000 00	125 00	–	14 75	38 31	1,915 57	215 00	241 81	–
Hamilton .	887 25	800 00	45 00	–	9 25	6 00	–	–	27 00	–
Haverhill .	71,897 10	45,000 00	907 81	–	70 80	2,208 41	24,000 00	152 11	1,827 18	–
Ipswich .	6,100 00	6,100 00	225 00	–	25 00	321 13	–	–	235 40	–
Lawrence .	84,663 14	65,882 26	2,026 67	2,026 67	195 00	3,770 87	10,000 00	4,000 00	1,000 00	–
Lynn .	81,303 34	67,623 58	2,305 75	2,000 00	306 38	3,575 28	6,652 18	1,621 50	3,121 15	–
Lynnfield .	600 00	600 00	60 00	–	–	–	–	–	–	–
Manchester .	3,341 28	2,800 00	200 00	–	25 00	108 63	–	433 72	–	–

Rowley . .	2,940 00	1,400 00	75 00	–	15 00	25 00	1,500 00	–	40 00	–
Salem . .	82,914 99	69,400 84	2,500·00	2,500 00	148 03	1,900 45	6,725 45	7,522 81	2,729 81	–
Salisbury .	8,125 45	6,500 00	250 00	–	40 00	119 07	–	131 30	1,085 08	–
Saugus . .	5,650 00	5,500 00	160 00	–	50 00	–	–	100 00	50 00	–
Swampscott .	6,554 47	6,500 00	195 00	–	21 50	234 36	–	179 55	400 77	–
Topsfield . .	1,524 20	1,400 00	75 00	75 00	10 44	–	–	–	19 10	–
Wenham . .	1,445 00	1,400 00	81 00	–	17 00	20 00	–	–	25 00	–
West Newbury, .	8,230 48	2,899 11	126 50	–	37 00	–	–	–	214 14	–
Totals . .	$602,061 51	$471,656 48	$15,301 08	$8,601 67	$2,017 85	$21,626 30	$80,291 36	$15,707 61	$22,246 99	$1,200 00

ESSEX COUNTY—CONCLUDED.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS. Number of Academies.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Amesbury . .	–	–	$123 63	–	–	–	1	19	$40 00	$208 94	$30 00
Andover . .	$289,668 28	$14,483 40	–	2	308	$18,989 00	2	86	700 00	180 58	–
Beverly . .	3,000 00	180 00	313 23	–	–	–	2	50	500 00	135 43	–
Boxford . .	2,437 93	128 67	54 48	–	–	–	–	–	–	212 48	–
Bradford . .	–	–	–	1	190	7,066 00	1	19	200 00	186 20	–
Danvers . .	–	–	291 07	–	–	–	2	20	400 00	205 88	–
Essex . . .	–	–	–	–	–	–	–	–	–	230 66	–
Georgetown . .	–	–	208 27	–	–	–	–	–	–	190 49	–
Gloucester . .	–	–	484 33	–	–	–	2	85	1,200 00	395 19	–
Groveland . .	–	–	–	–	–	–	–	–	–	240 19	–
Hamilton . .	–	–	66 99	–	–	–	–	–	–	210 34	–
Haverhill . .	–	–	–	–	–	–	2	70	1,050 00	268 08	–
Ipswich . .	33,450 00	2,250 00	194 04	–	–	–	–	–	–	204 14	–
Lawrence . .	–	–	–	–	–	–	*	–	–	–	–
Lynn . . .	–	–	–	–	–	–	5	130	2,000 00	–	–
Lynnfield . .	–	–	–	–	–	–	–	–	–	211 51	–
Manchester . .	–	–	–	–	–	–	–	–	–	173 03	–
Marblehead . .	–	–	330 97	1	–	–	2	45	500 00	242 28	–
Merrimac . .	–	–	91 11	–	–	–	–	–	–	185 82	50 00
Methuen . .	–	–	–	–	–	–	1	6	108 00	211 44	–

Salem . . .	5,425 00	325 50	1,252 15	–	–	–	15	1,210	10,000 00	–	–
Salisbury . .	–	–	146 77	–	–	–	–	–	–	216 74	–
Saugus . . .	–	–	–	–	–	–	–	–	–	195 07	25 00
Swampscott . .	–	–	–	–	–	–	–	–	–	138 04	–
Topsfield . .	–	–	124 20	–	–	–	–	–	–	217 16	–
Wenham . .	–	–	66 49	–	–	–	–	–	–	214 85	–
West Newbury .	–	–	94 06	–	–	–	1	30	30 00	234 72	–
Totals . .	$424,981 21	$22,827 57	$4,799 17	6	634	$26,255 00	44	1,822	$20,753 00	$6,725 74	$148 40

* 1,200 pupils in Catholic Parochial Schools.

FRANKLIN COUNTY,

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Ashfield . . .	1,062	$439,277	14	176	131	228	10	27	126	178	157	·88	14
Bernardston . .	934	377,112	6	158	121	209	–	8	120	129	119	·92	6
Buckland . .	1,739	493,830	9	352	229	366	14	6	229	261	237	·90	9
Charlemont . .	932	308,840	9	114	104	174	–	31	104	126	102	·81	9
Colrain . . .	1,777	582,597	14	300	216	386	6	32	206	275	245	·89	14
Conway . . .	1,760	728,407	12	275	162	303	9	34	176	242	223	·92	12
Deerfield . .	3,543	1,233,132	20	590	390	585	5	24	385	530	485	·90	21
Erving . . .	872	289,300	6	155	110	182	3	11	113	152	136	·89	6
Gill . . .	733	423,133	6	129	70	146	7	23	69	119	103	·86	6
Greenfield . .	3,903	2,744,372	18	710	407	762	5	78	348	646	596	·92	25
Hawley . . .	592	150,754	8	124	114	148	2	14	88	119	99	·80	8
Heath . . .	560	175,636	8	103	63	134	6	26	56	105	99	·94	8
Leverett . .	742	267,915	6	119	73	153	6	21	82	106	99	·93	6
Leyden . . .	507	196,855	5	115	75	128	3	32	73	92	72	·78	5
Monroe . . .	166	39,469	3	52	33	63	–	11	33	55	38	·70	5
Montague . .	4,876	2,478,575	21	1,145	756	1,083	9	35	604	811	707	·87	21
New Salem . .	869	320,260	7	132	89	143	4	9	86	108	105	·97	7
Northfield . .	1,603	632,677	10	259	192	305	6	18	160	220	195	·88	10
Orange . . .	3,171	1,492,107	19	455	278	568	6	21	263	440	404	·92	20
Rowe . . .	502	167,179	6	96	66	117	2	22	60	72	66	·91	6
Shelburne . .	1,621	800,981	10	265	174	292	1	26	180	222	200	·90	10
Shutesbury . .	529	161,013	7	102	71	111	9	5	68	101			
Sunderland . .	755	404,169	6										

HAMPDEN COUNTY.

Agawam . .	2,216	$1,212,714	9	346	243	455	–	34	243	321	271	·84	10
Blandford . .	979	335,286	13	214	100	241	6	36	90	204	153	·75	13
Brimfield . .	1,203	476,403	7	213	130	202	5	8	125	134	113	·85	7
Chester . . .	1,473	494,094	10	275	164	288	5	12	154	200	175	·88	10
Chicopee . .	11,325	5,138,560	26	2,186	1,171	1,657	8	98	832	1,009	923	·91	35
Granville . .	1,205	351,216	12	250	139	287	7	38	139	201	183	·90	12
Hampden . .	958	387,168	6	176	102	183	3	23	124	126	112	·88	6
Holland . .	302	118,548	4	63	39	70	3	5	39	53	41	·76	4
Holyoke . .	21,851	11,977,410	43	4,267	2,831	3,163	5	166	1,891	1,849	1,613	·87	49
Longmeadow .	1,401	910,150	11	241	142	289	4	32	178	230	186	·80	11
Ludlow . . .	1,526	734,657	10	330	204	351	8	16	204	214	189	·88	11
Monson . . .	3,758	1,338,284	17	589	–	674	9	16	412	442	438	·99	18
Montgomery . .	303	134,604	5	65	34	64	3	8	34	61	54	·88	5
Palmer . . .	5,504	2,257,517	25	1,096	868	1,119	11	60	666	872	769	·88	25
Russell . . .	823	438,344	5	140	73	134	4	1	71	133	103	·77	5
Southwick . .	1,104	599,745	10	207	124	252	7	30	120	209	177	·84	10
Springfield . .	33,340	32,746,016	90	5,865	3,280	5,834	26	466	2,990	4,538	4,250	·94	114
Tolland . . .	452	181,575	6	87	37	79	3	16	35	63	60	·95	6
Wales . . .	1,030	401,720	6	188	107	191	2	5	134	117	104	·89	6
Westfield . .	7,587	5,936,098	31	1,334	1,000	1,648	2	151	910	1,159	1,090	·94	40
West Springfield .	4,149	2,888,112	18	731	684	852	6	39	560	845	618	·72	19
Wilbraham . .	1,628	700,002	9	262	171	269	3	7	179	202	180	·89	9
Totals . .	104,117	$69,758,228	373	19,125	11,643	18,302	130	1,267	10,130	13,182	11,802	·90	425

FRANKLIN COUNTY — CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No. of different female teachers in school-year.	No. of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No. of Schools kept less than six months each.	HIGH SCHOOLS.					
										No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	LENGTH. Months. Days.	Salary of Principal.
Ashfield . .	–	18	1	–	–	$19 98	85–5	6–2	3	–	–	–	–	–	–
Bernardston .	3	7	–	–	$37 36	28 47	56–15	8–3	–	1	2	55	In part,	8–15	$450 00
Buckland . .	4	13	–	–	26 25	23 50	70–18	7–18	–	–	–	–	–	–	–
Charlemont .	3	12	–	–	26 65	18 77	54	6	2	–	–	–	–	–	–
Colrain . .	5	16	1	–	28 60	21 94	89–5	6–4	–	–	–	–	–	–	–
Conway . .	3	15	2	1	49 58	23 97	82–15	6–18	–	1	1	45	Taxation,	8–10	476 67
Deerfield . .	3	26	5	3	32 00	30 00	161	8–1	–	1	1	27	Taxation,	9	396 00
Erving . .	–	7	1	1	–	29 38	44–5	7–2	–	–	–	–	–	–	–
Gill . . .	–	7	–	–	–	30 00	41–5	6–18	–	–	–	–	–	–	–
Greenfield . .	4	28	4	3	83 00	34 60	154–15	8–5	–	1	5	77	Taxation,	9	1,500 00
Hawley . .	–	10	–	–	–	17 17	48	6	–	–	–	–	–	–	–
Heath . . .	1	9	1	1	28 00	17 62	48	6	–	–	–	–	–	–	–
Leverett . .	–	10	–	–	–	21 28	42–16	7–2	–	–	–	–	–	–	–
Leyden . .	2	8	–	–	28 00	22 00	33–5	6–12	1	–	–	–	–	–	–
Monroe . .	–	5	–	–	–	16 50	18	6	–	–	–	–	–	–	–
Montague . .	1	26	8	6	59 20	35 04	171–10	8–17	–	1	1	34	Taxation,	9	450 00
New Salem . .	1	10	–	–	20 00	21 64	52–10	7–10	–	–	–	–	–	–	–
Northfield . .	2	12	2	2	44 00	26 30	76–5	7–13	–	–	–	–	–	–	–
Orange . .	5	24	2	–	56 00	26 20	131–10	7	–	1	2	53	Taxation,	9–10	1,000 00
Rowe . . .	1	8	–	–	20 00	16 25	39–10	6–11	–	–	–	–	–	–	–
Shelburne . .	2	11	5	5	29 00	28 00	77	7–14	1	–	–	–	–	–	–
Shutesbury . .	1	11	1	1	19 80	18 76	42	6							
Sunderland . .	1	7													

HAMPDEN COUNTY—CONTINUED.

Agawam . .	-	16	5	4	-	$35 00	74	8-10	-	-	-	-	-	-	-
Blandford . .	3	18	3	1	$25 67	25 13	81-15	6-7	-	-	-	-	-	-	-
Brimfield . .	-	9	3	3	-	28 24	52-10	7	-	1	4	124	Endowm't,	10	$1,200 00
Chester . .	-	20	-	-	-	20 10	76-5	7-15	-	-	-	-	-	-	-
Chicopee . .	4	38	9	7	113 15	38 32	249-16	9-16	-	2	2 3	56 43	Taxation,	9-18 9-18	1,400 00 1,300 00
Granville . .	2	17	6	5	22 00	24 20	76-5	6-7	-	-	-	-	-	-	-
Hampden . .	5	7	1	-	25 08	25 08	48	8	-	-	-	-	-	-	-
Holland . .	1	5	-	-	22 00	19 00	21	6	-	-	-	-	-	-	-
Holyoke . .	6	48	12	8	94 00	41 43	417-2	9-19	-	1	4	121	Taxation,	9-16	1,600 00
Longmeadow .	3	14	2	1	45 32	28 52	94-18	8-18	-	-	-	-	-	-	-
Ludlow . .	-	14	2	1	-	26 00	80-10	8-1	-	-	-	-	-	-	-
Monson . .	7	19	-	-	31 43	28 94	139-13	7-15	-	1	3	60	Taxation,	9-15	1,200 00
Montgomery .	-	7	1	-	-	20 00	30	6	-	-	-	-	-	-	-
Palmer . .	5	26	1	-	45 00	32 00	210	8-8	-	1	1	41	Taxation,	10	1,000 00
Russell . .	-	5	1	1	-	25 10	34	6-16	-	-	-	-	-	-	-
Southwick . .	2	14	2	1	40 00	22 00	88-10	8-10	-	-	-	-	-	-	-
Springfield . .	9	110	29	21	168 00	51 50	900	10	-	1	9	405	Taxation,	10	2,600 00
Tolland . .	1	11	1	1	28 00	20 50	40	6-13	1	-	-	-	-	-	-
Wales . . .	2	7	-	-	30 00	20 50	45	7-10	-	-	-	-	-	-	-
Westfield . .	6	49	83	28	100 00	32 00	280	8-19	-	1	5	180	Taxation,	10	1,600 00
West Springfield,	2	24	8	6	100 00	63 62	163	9	-	1	2	52	Taxation,	10	1,000 00
Wilbraham . .	3	13	-	-	28 80	28 13	72	8	-	-	-	-	-	-	-
Totals . .	61	491	119	83	$72 66	$36 68	3,274-4	8-16	1	9	33	1,082	-	-	$12,900 00

FRANKLIN COUNTY — CONTINUED.

TOWNS.		Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880-81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expenses of printing reports, etc.	Expense of sundries, — books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Ashfield .	.	$1,764 39	$1,600 00	$100 25	–	$20 00	$12 00	–	–	$15 00	$169 50
Bernardston	.	901 40	683 00	66 50	–	11 50	5 50	–	–	218 40	50 00
Buckland	.	2,526 73	1,600 00	118 75	–	23 00	326 40	–	$458 58	–	–
Charlemont	.	1,355 70	1,100 00	55 00	–	10 00	–	–	–	10 00	–
Colrain .	.	2,000 00	2,000 00	101 00	–	11 00	25 20	–	–	53 23	85 00
Conway .	.	2,787 75	2,300 00	102 75	–	10 00	125 50	$175 00	–	74 58	80 00
Deerfield .	.	5,909 37	4,500 00	250 00	–	25 00	150 00	–	475 00	300 00	–
Erving .	.	1,200 00	1,200 00	43 95	–	20 00	13 90	–	–	–	–
Gill . .	.	840 00	800 00	34 00	–	6 00	–	–	–	–	132 00
Greenfield	.	11,382 12	8,700 00	300 00	–	15 23	201 87	–	648 85	1,096 13	–
Hawley .	.	740 49	1,000 00	30 50	–	10 00	98 29	–	–	–	–
Heath .	.	688 03	700 00	37 00	–	9 00	1 00	–	–	–	–
Leverett .	.	800 00	800 00	39 00	–	10 00	–	–	–	–	–
Leyden .	.	657 00	600 00	45 00	–	–	2 00	–	–	10 00	–
Monroe .	.	336 80	200 00	12 00	–	5 00	1 40	–	–	6 30	–
Montague	.	9,133 17	8,000 00	300 00	–	17 50	326 43	–	160 00	303 53	–
New Salem	.	1,278 26	1,100 00	41 75	–	6 00	9 63	–	300 00	85 00	–
Northfield	.	2,000 00	2,000 00	78 75	–	7 00	–	4,300 00	–	15 00	–
Orange	.	5,109 00	5,200 00	205 00	–	27 00	20 00	–	540 55	15 00	–

HAMPDEN COUNTY—Continued.

Agawam . .	$3,180 15	$3,000 00	$120 00	-	$10 00	$32 00	-	$45 00	$25 00	-
Blandford .	1,200 00	1,440 62	36 00	-	15 00	20 30	-	-	91 75	$636 70
Brimfield .	1,450 00	1,400 00	66 50	-	15 00	15 00	-	-	51 31	-
Chester . .	1,869 34	1,400 00	99 50	-	10 00	26 63	-	325 00	8 21	-
Chicopee . .	29,500 75	20,675 00	1,600 00	$1,600 00	47 00	1,508 08	-	5,679 90	994 07	-
Granville . .	1,785 44	1,600 00	61 12	-	10 00	6 60	$600 00	209 00	-	63 00
Hampden .	1,247 67	1,100 00	56 00	-	17 00	7 42	-	-	67 25	-
Holland . .	229 21	200 00	17 00	-	-	-	-	-	18 00	-
Holyoke . .	45,495 19	33,000 00	1,660 00	1,660 00	155 50	3,469 79	7,147 96	891 64	528 36	-
Longmeadow .	3,473 69	2,950 00	181 29	-	28 00	77 68	-	-	261 19	-
Ludlow . .	2,415 53	2,000 00	90 00	-	-	-	-	-	25 00	-
Monson . .	5,900 81	5,428 47	158 05	-	-	95 10	944 33	1,076 96	110 46	-
Montgomery .	425 00	425 00	20 50	-	5 00	-	-	-	-	-
Palmer . .	13,020 25	9,000 00	342 00	-	35 00	70 00	2,033 61	1,026 07	853 31	-
Russell . .	825 05	500 00	30 00	-	10 00	38 44	984 00	-	37 16	-
Southwick .	1,031 30	900 00	110 00	-	8 00	57 22	-	-	200 00	-
Springfield .	91,760 70	82,000 00	3,000 00	3,000 00	56 14	2,565 03	1,209 82	-	7,497 14	-
Tolland . .	500 00	500 00	33 00	-	-	-	-	-	-	97 00
Wales . .	1,055 50	800 00	59 25	-	3 00	4 19	-	20 00	15 08	-
Westfield .	18,983 36	17,259 68	550 00	-	10 00	525 70	-	150 00	969 65	-
W. Springfield,	7,400 00	7,241 78	200 00	-	-	-	-	858 72	500 00	-
Wilbraham .	2,934 35	1,839 82	147 49	-	22 00	11 10	895 30	-	18 64	-
Totals . .	$235,683 29	$194,660 37	$8,637 70	$6,260 00	$456 64	$8,525 23	$13,815 02	$10,282 29	$11,771 58	$796 70

FRANKLIN COUNTY — CONCLUDED.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS.							
				Number of Academies.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Ashfield . .	$933 00	$56 00	$44 00	1	30	$300 00	-	-	-	$217 37	-
Bernardston . .	10,716 67	1,272 00	79 80	-	-	-	-	-	-	216 09	-
Buckland . .	914 83	54 89	86 10	-	-	-	-	-	-	234 16	-
Charlemont . .	800 00	48 00	51 70	-	-	-	-	-	-	212 59	-
Colrain . . .	-	-	66 00	-	-	-	1	25	$75 00	229 35	-
Conway . .	-	-	79 00	-	-	-	2	16	344 00	225 98	$17 00
Deerfield . .	50,000 00	3,000 00	121 50	1	85	-	-	-	-	205 41	25 00
Erving . . .	900 00	36 00	25 50	-	-	-	-	-	-	214 73	-
Gill . . .	-	-	-	-	-	-	-	-	-	211 89	-
Greenfield . .	-	-	-	-	-	-	1	35	1,230 00	215 07	31 94
Hawley . .	400 00	24 00	-	-	-	-	-	-	-	212 30	-
Heath . . .	-	-	-	-	-	-	1	17	68 00	209 27	-
Leverett . .	-	-	53 00	-	-	-	-	-	-	211 12	43 88
Leyden . . .	-	-	-	-	-	-	-	-	-	209 75	-
Monroe . .	-	-	-	-	-	-	-	-	-	205 47	-
Montague . .	-	-	-	-	-	-	2	42	375 00	230 58	60 00
New Salem . .	6,500 00	325 00	27 55	1	63	375 00	-	-	-	213 74	-
Northfield . .	400 00	18 00	404 49	-	-	-	1	120	2,520 00	225 85	-
Orange . . .	-	-	-	-	-	-	-	-	-	194 20	-
Rowe . . .	200 00	12 00	36 15	-	-	-	-	-	-	209 38	-
Shelburne . .	-	-	137 78	1	94	426 25	-	-	-	225 07	

						[illegible]	8	255	$4,612 00	$5,596 97	$177 82

HAMPDEN COUNTY — CONCLUDED.

Agawam . .	-	-	-	-	-	-	-	-	-	$180 15	-
Blandford . .	$3,000 00	$180 00	$64 98	-	-	-	-	-	-	221 96	-
Brimfield . .	67,000 00	4,000 00	-	1	-	-	-	-	-	221 57	$8 57
Chester . .	500 00	23 77	87 60	-	-	-	2	40	$300 00	227 51	-
Chicopee . .	-	-	-	-	-	-	5	1,030	860 00	305 30	-
Granville . .	-	-	66 43	-	-	-	-	-	-	225 95	12 60
Hampden . .	-	-	80 38	-	-	-	-	-	-	217 86	-
Holland . .	222 22	13 33	15 88	-	-	-	-	-	-	206 34	-
Holyoke . .	-	-	436 05	-	-	-	17	1,566	6,000 00	-	-
Longmeadow .	731 00	43 86	163 89	-	-	-	-	-	-	225 56	-
Ludlow . .	-	-	117 48	-	-	-	1	8	120 00	230 94	9 00
Monson . .	25,000 00	1,500 00	240 19	1	75	$1,100 00	-	-	-	206 98	-
Montgomery . .	-	-	-	-	-	-	-	-	-	205 57	-
Palmer . . .	850 00	34 00	218 00	-	-	-	-	-	-	245 52	241 61
Russell . . .	-	-	39 95	-	-	-	-	-	-	212 10	-
Southwick . .	15,618 03	937 08	78 99	-	-	-	-	-	-	220 68	-
Springfield . .	-	-	-	-	-	-	8	475	6,000 00	-	-
Tolland . .	-	-	-	-	-	-	-	-	-	207 62	-
Wales . . .	-	-	51 50	-	-	-	-	-	-	217 95	-
Westfield . .	84,451 34	4,225 56	442 82	-	-	-	2	45	700 00	139 50	20 00
West Springfield .	14,000 00	950 00	226 23	-	-	-	2	16	-	222 09	-
Wilbraham . .	1,308 33	78 50	112 86	1	277	9,057 38	1	9	57 37	225 76	36 00
Totals . .	$212,680 92	$11,986 10	$2,443 23	3	352	$10,157 38	38	3,189	$14,037 37	$4,366 94	$327 78

HAMPSHIRE COUNTY.

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Amherst . .	4,299	$2,835,151	19	695	394	815	5	130	437	636	608	·95	21
Belchertown . .	2,346	880,175	19	470	327	547	16	49	283	404	360	·89	19
Chesterfield . .	769	300,249	9	135	100	156	6	22	100	118	106	·90	9
Cummington . .	881	355,122	9	185	123	187	3	8	102	147	126	·85	9
Easthampton . .	4,206	2,261,447	19	851	527	870	8	61	497	688	596	·86	20
Enfield . . .	1,043	690,670	7	172	111	178	6	15	102	149	138	·92	7
Goshen . . .	327	138,940	4	74	51	77	2	4	51	53	42	·79	4
Granby . . .	753	427,071	9	133	87	160	9	14	69	140	123	·88	9
Greenwich . .	634	272,531	7	116	85	128	3	7	83	106	94	·88	7
Hadley . . .	1,938	1,226,517	13	378	208	442	4	9	248	352	324	·92	13
Hatfield . .	1,495	1,036,746	7	305	197	301	5	5	197	278	222	·79	7
Huntington . .	1,236	479,354	8	191	112	239	15	25	113	160	147	·92	8
Middlefield . .	648	322,075	8	155	101	171	6	13	98	132	112	·85	8
Northampton .	12,172	7,851,668	49	2,089	1,269	2,176	6	141	1,245	1,811	1,656	·91	54
Pelham . . .	614	172,222	4	122	75	114	4	15	72	89	69	·71	4
Plainfield . .	457	146,080	5	58	35	65	4	6	35	60	55	·92	5
Prescott . .	460	191,410	5	88	61	118	1	27	61	90	83	·92	5
South Hadley .	3,538	1,649,283	16	709	550	823	5	70	530	623	558	·89	18
Southampton .	1,046	490,440	8	200	133	200	1	30	126	149	143	·95	8
Ware . . .	4,817	2,034,704	21	995	604	909	10	47	585	685	623	·91	23

HAMPSHIRE COUNTY — CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No. of different female teachers in school-year.	No of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No. of Schools kept less than six months each.	HIGH SCHOOLS.					
										No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	LENGTH. Months. Days.	Salary of Principal.
Amherst . .	1	25	2	2	$106 00	$31 24	157-5	8-8	–	1	3	80	Taxation,	9	$960 00
Belchertown .	10	18	1	1	31 54	22 07	153	8-1	–	1	1	41	Taxation,	9	450 00
Chesterfield .	4	12	2	1	28 33	21 50	60-2	6-13	–	–	–	–	–	–	–
Cummington .	1	12	2	2	24 00	22 00	62-10	6-9	–	–	–	–	–	–	–
Easthampton .	–	26	4	4	–	33 42	166-5	8-15	–	1	1	55	Taxation,	10	700 00
Enfield . .	–	8	–	–	–	23 50	54-15	7-17	–	–	–	–	–	–	–
Goshen . .	3	5	–	–	20 00	18 40	25-10	6-3	–	–	–	–	–	–	–
Granby . .	3	12	4	2	22 00	22 00	62-10	6-18	–	1	1	41	Taxation,	9	600 00
Greenwich .	2	5	–	–	20 00	20 00	47	6-7	–	–	–	–	–	–	–
Hadley . .	–	18	4	4	–	25 89	100-10	7-14	–	1	2	53	Not by tax,	8-10	637 50
Hatfield . .	–	12	2	–	–	24 00	64-1	9-3	–	–	–	–	–	–	–
Huntington .	2	8	2	2	24 40	21 56	65-10	8-4	–	–	–	–	–	–	–
Middlefield .	3	8	2	1	22 05	21 30	47-15	6-16	1	–	–	–	–	–	–
Northampton .	6	66	10	10	86 50	32 00	407-5	8-7	–	1	4	149	Taxation,	10	1,600 00
Pelham . .	1	6	–	–	20 00	20 00	30	7-10	–	–	–	–	–	–	–
Plainfield . .	1	5	–	–	18 00	17 89	30	6	–	–	–	–	–	–	–
Prescott . .	2	7	1	1	28 00	21 83	30	6	–	–	–	–	–	–	–
South Hadley .	7	16	3	3	68 58	32 33	148	9-5	–	2	4	88	Taxation,	9-5	1,157 01

Worthington . .	–		–		–									
Totals . .	57	345	50	44	$42 55	$26 85	2137–17	7–14	5	11	21	665	–	–	$8,792 07

HAMPSHIRE COUNTY — Continued.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880-81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expense of printing reports, etc.	Expense of sundries, — books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Amherst . .	$9,018 10	$6,996 17	$500 00	–	$10 00	–	$1,388 00	$1,150 41	$204 09	–
Belchertown .	4,483 46	3,500 00	168 00	–	23 00	$61 83	–	421 76	60 58	–
Chesterfield .	985 50	900 00	50 50	–	10 00	10 00	–	–	15 00	$137 12
Cummington .	1,067 08	900 00	57 75	–	10 00	14 72	–	–	–	400 00
Easthampton .	8,500 00	6,600 00	180 00	–	18 00	500 00	800 00	–	433 93	–
Enfield . .	2,166 00	1,400 00	77 00	–	17 00	256 00	–	416 00	–	–
Goshen . .	677 40	300 00	28 50	–	4 00	2 00	303 27	–	74 13	110 00
Granby . .	1,686 00	1,600 00	86 00	–	15 00	7 00	–	–	46 00	–
Greenwich .	1,025 06	1,025 06	65 00	–	–	29 46	–	144 94	–	–
Hadley . .	3,753 35	2,750 00	117 50	–	7 20	–	–	–	878 55	–
Hatfield . .	1,500 00	1,500 00	87 50	–	–	24 82	–	–	86 62	–
Huntington .	2,313 64	1,300 00	129 25	–	8 00	27 18	–	407 44	60 56	–
Middlefield .	800 00	800 00	52 00	–	8 00	9 00	–	–	10 00	–
Northampton .	22,000 00	19,600 00	1,000 00	$1,000 00	65 26	369 18	–	870 20	1,160 18	–
Pelham . .	650 00	650 00	53 25	–	15 00	20 60	–	29 02	–	–
Plainfield .	709 21	400 00	23 60	–	6 30	50	284 55	50	3 86	–
Prescott . .	554 00	500 00	30 00	–	12 00	–	–	–	12 00	–
South Hadley	8,399 29	7,881 89	145 00	–	45 60	280 61	–	401 83	26 25	–

HAMPSHIRE COUNTY — CONCLUDED.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS.							
				Number of Academies.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Amherst . .	$5,000 00	$300 00	$184 67	–	–	–	3	45	$2,000 00	$221 61	–
Belchertown . .	–	–	131 93	–	–	–	–	–	–	246 81	$10 22
Chesterfield . .	1,100 00	66 00	19 00	–	–	–	1	10	50 00	213 16	–
Cummington .	–	–	30 00	–	–	–	–	–	–	215 22	20 00
Easthampton .	258,000 00	11,250 00	110 50	1	240	$12,000 00	–	–	–	232 64	39 50
Enfield . . .	–	–	–	–	–	–	–	–	–	218 25	25 00
Goshen . . .	–	–	–	–	–	–	–	–	–	206 64	–
Granby . .	–	–	35 75	–	–	–	–	–	–	213 84	–
Greenwich . .	500 00	30 00	39 15	–	–	–	–	–	–	210 15	–
Hadley . . .	30,000 00	2,600 00	–	–	–	–	1	12	800 00	191 65	–
Hatfield . .	55,000 00	3,800 00	69 89	1	82	981 55	–	–	–	181 53	–
Huntington . .	–	–	61 69	–	–	–	–	–	–	218 73	–
Middlefield . .	–	–	131 71	–	–	–	1	30	150 00	214 44	–
Northampton .	3,064 01	54 31	–	–	–	–	3	160	7,000 00	197 68	–
Pelham . .	–	–	48 94	–	–	–	–	–	–	212 59	–
Plainfield . .	–	–	–	–	–	–	–	–	–	205 86	50
Prescott . .	–	–	25 56	–	–	–	–	–	–	208 58	4 06
South Hadley .	–	–	157 07	1	250	41,000 00	–	–	–	211 17	–
Southampton .	2,000 00	120 00	68 80	–	–	–					

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MIDDLESEX COUNTY.

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Acton . . .	1,797	$1,206,834	9	297	200	290	10	47	195	249	247	·90	9
Arlington . .	4,100	5,190,493	20	814	–	870	–	76	487	767	666	·87	23
Ashby . . .	914	469,441	10	166	118	219	2	33	118	201	199	·99	11
Ashland . .	2,394	1,248,755	11	448	220	452	–	44	220	363	337	·92	12
Ayer . . .	1,882	1,026,528	8	393	214	440	12	41	232	359	332	·92	8
Bedford . .	931	766,054	6	148	103	166	3	21	103	144	128	·89	6
Belmont . .	1,615	3,483,774	6	252	195	291	5	31	195	259	238	·92	11
Billerica . .	2,000	1,594,811	10	315	–	344	9	3	201	260	228	·88	10
Boxborough . .	319	280,751	4	50	30	58	1	13	30	47	45	·94	4
Burlington . .	711	491,510	5	124	76	116	1	13	74	105	90	·85	5
Cambridge . .	52,740	51,093,290	30*	9,390	–	8,537	–	603	–	7,175	6,614	·92	183
Carlisle . .	478	399,603	5	53	31	64	1	13	31	61	56	93	5
Chelmsford . .	2,553	1,487,525	14	476	280	472	3	50	272	437	371	·85	15
Concord . .	3,922	3,008,548	15	636	359	608	–	83	343	584	505	·86	16
Dracut . . .	1,605	1,242,972	10	268	221	334	3	28	216	232	202	·87	10
Dunstable . .	453	282,972	5	67	39	81	2	11	39	67	64	·96	5
Everett . .	4,159	4,263,550	17	764	452	891	1	68	636	718	651	·91	19
Framingham . .	6,235	4,978,500	22	1,004	600	1,102	6	92	602	912	823	·90	33
Groton . . .	1,862	2,446,361	14	324	175	395	9	62	175	264	232	·87	14
Holliston . .	3,099	1,752,459	15	576	–	642	2	64	355	515	471	·91	16

Medford . .	7,573	7,588,276	23	1,204	772	1,320	–	145	820	1,146	1,076	·93	29
Melrose . .	4,560	3,705,058	16	888	500	1,065	–	146	645	756	703	·93	19
Natick . . .	8,480	4,655,066	34	1,665	1,048	1,757	–	98	1,020	1,541	1,413	·91	38
Newton . .	16,995	26,408,273	65	3,182	1,876	3,418	28	397	1,871	2,824	2,571	·72	77
North Reading .	900	537,143	6	144	89	169	2	13	92	144	117	·81	6
Pepperell . .	2,348	1,401,648	8	372	228	376	7	35	211	276	237	·86	8
Reading . .	3,181	2,523,165	15	498	298	594	5	89	315	522	460	·88	17
Sherborn . .	1,401	860,575	6	155	88	147	1	7	89	112	98	·88	6
Shirley . . .	1,365	724,459	7	195	90	222	7	20	80	158	154	·97	7
Somerville . .	24,985	22,569,100	82	5,054	3,040	5,540	–	449	2,700	4,278	4,004	·93	92
Stoneham . .	4,891	2,991,770	19	887	541	952	9	73	543	768	695	·90	19
Stow . . .	1,045	870,205	6	198	128	241	1	37	126	183	148	·80	6
Sudbury . .	1,178	1,032,004	7	183	83	206	4	13	82	160	142	·89	7
Tewksbury . .	2,171	1,072,949	7	199	120	201	1	11	116	167	147	·88	7
Townsend . .	1,967	1,065,662	16	333	201	422	13	54	215	319	295	·92	16
Tyngsborough .	631	322,160	9	108	98	131	3	12	98	124	116	·93	9
Wakefield . .	5,548	3,433,456	18	914	391	859	–	131	690	882	828	·94	21
Waltham . .	11,711	9,280,264	38	2,146	1,181	2,306	6	163	1,204	1,789	1,653	·92	45
Watertown . .	5,426	7,881,820	17	855	550	992	–	92	504	746	704	·94	23
Wayland . .	1,962	1,231,881	10	368	244	360	3	16	230	350	289	·83	10
Westford . .	2,147	1,058,620	11	362	225	413	9	16	225	303	273	·88	11
Weston . . .	1,448	1,656,566	8	187	126	250	2	19	138	202	185	·91	8
Wilmington . .	933	562,542	6	148	–	166	2	12	86	140	121	·86	6
Winchester . .	3,802	3,741,844	14	563	–	730	1	50	326	584	536	·91	19
Woburn . .	10,938	8,216,383	46	2,229	1,262	2,280	–	174	1,210	2,035	1,834	·90	51
Totals . .	317,951	$268,986,013	973	55,736	24,620	58,998	239	4,856	28,254	47,193	42,980	·91	1,301

* Departments not included.

MIDDLESEX COUNTY — CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No of different female teachers in school-year.	No. of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No. of Schools kept less than six months each	HIGH SCHOOLS.					
										No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	LENGTH. Months. Days.	Salary of Principal.
Acton . .	–	12	4	3	–	$32 37	72-10	8	–	–	–	–	–	–	–
Arlington . .	4	19	4	4	$112 69	46 06	205	10-5	–	1	3	71	Taxation,	10-5	$1,700 00
Ashby . .	2	11	3	1	33 20	30 37	56-18	5-16	–	–	–	–	–	–	–
Ashland . .	1	15	4	4	120 00	33 80	85	7-15	–	1	2	52	Taxation,	10	1,200 00
Ayer . . .	2	8	1	1	92 82	38 13	64-6	8	–	1	1	31	Taxation,	8-18	828 42
Bedford . .	1	6	1	1	34 66	32 00	54	9	–	–	–	–	–	–	–
Belmont . .	2	9	1	1	85 00	40 27	72	10	–	1	2	50	Taxation,	10	1,500 00
Billerica . .	1	11	2	2	32 00	31 60	78	7-16	–	–	–	–	–	–	–
Boxborough .	1	4	–	–	32 00	28 00	28	7	–	–	–	–	–	–	–
Burlington .	1	4	–	–	60 00	28 00	41-15	8-7	1	–	–	–	–	–	–
Cambridge .	13	188	99	81	191 46	59 88	303-15	10-3	–	1	12	485	Taxation,	10-3	2,800 00
Carlisle . .	–	7	3	1	–	26 60	29	8	–	–	–	–	–	–	–
Chelmsford .	1	17	7	6	90 00	31 49	108-15	7-15	2	1	1	38	Taxation,	8-10	765 00
Concord . .	2	24	8	8	156 25	45 50	128-7	8	1	1	2	80	Taxation,	9-12	1,500 00
Dracut . .	3	10	3	3	32 00	32 00	87-10	8-15	–	–	–	–	–	–	–
Dunstable . .	–	10	–	–	–	21 78	32-10	6-10	–	–	–	–	–	–	–
Everett . .	2	19	6	4	110 00	41 00	160	9-13	–	1	2	34	Taxation,	10	1,200 00

Maynard . .	5	7	4	4	55 00	44 00	73	9	–	1	1	37	Taxation,	10	800 00
Medford . .	7	26	6	6	144 00	47 00	224	10	–	1	3	118	Taxation,	10	2,050 00
Melrose . .	1	18	8	8	160 00	47 70	160	10	–	1	3	91	Taxation,	10	1,600 00
Natick . .	5	33	17	16	114 30	38 50	304	8–18	–	1	3	91	Taxation,	10	1,200 00
Newton . .	15	69	21	17	156 43	66 55	650	10	–	1	12	319	Taxation,	10	2.700 00
North Reading .	–	7	5	5	–	33 00	51	8–10	–	1	1	34	Taxation,	8	306 00
Pepperell . .	–	10	2	1	–	32 50	64–10	8	–	–	–	–	–	–	–
Reading . .	2	22	5	5	105 25	37 75	142–10	9–10	–	1	3	108	Taxation,	9–10	1,000 00
Sherborn . .	–	6	2	1	–	32 22	50–12	8–8	–	1	1	45	In part,	9	1,100 00
Shirley . .	3	7	4	3	44 00	25 20	49–5	7	–	–	–	–	–	–	–
Somerville . .	9	88	16	12	171 43	53 90	820	10	–	1	7	337	Taxation,	10	2,200 00
Stoneham . .	1	22	3	3	155 00	43 84	170–13	9	–	1	3	76	Taxation,	10	1,540 00
Stow . . .	2	7	1	1	47 00	32 00	52–4	8–14	–	1	1	35	In part,	7	430 00
Sudbury . .	–	7	1	1	–	37 00	56	8	–	–	–	–	–	–	–
Tewksbury .	1	9	–	–	34 00	34 00	65	9	–	–	–	–	–	–	–
Townsend . .	5	19	3	3	44 00	25 83	110	6–18	–	1	1	43	Taxation,	9	500 00
Tyngsborough .	1	9	4	4	70 00	25 06	47–15	6–9	–	1	1	24	In part,	3	210 00
Wakefield . .	2	19	4	4	95 00	40 89	180	10	–	1	3	55	Taxation,	10	1,100 00
Waltham . .	6	42	9	5	126 00	47 90	368	9–15	–	1	4	156	Taxation,	10	1,600 00
Watertown .	8	21	3	3	97 50	47 25	170	10	–	1	5	72	Taxation,	10	1,600 00
Wayland . .	4	10	3	3	72 00	35 50	85	8–10	–	–	–	–	–	–	–
Westford . .	–	14	1	1	–	30 76	89–4	8–1	–	–	–	–	–	–	–
Weston . .	2	8	3	3	111 00	37 00	70–16	8–17	–	1	1	32	Taxation,	9	1,000 00
Wilmington .	2	8	4	3	48 00	32 00	50	8–7	–	1	1	30	Taxation,	9–10	450 00
Winchester .	8	20	4	2	130 00	40 60	134–9	9–12	–	1	3	55	Taxation,	10	1,600 00
Woburn . .	5	46	3	3	105 00	45 00	448	9–15	–	1	4	139	Taxation,	10	1,800 00
Totals . .	164	1,339	397	322	$107 32	$16 57	8799–7	9–1	6	38	119	3,874	–	–	$48,342 99

MIDDLESEX COUNTY — CONTINUED.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880-81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expense of printing reports, etc.	Expense of sundries, — books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Acton . .	$2,718 00	$2,500 00	$90 00	–	$35 00	$60 00	–	–	$25 00	–
Arlington .	16,673 15	17,000 00	–	–	–	410 89	–	$187 81	399 07	–
Ashby . .	2,044 64	1,750 00	75 00	–	15 00	152 35	–	–	52 29	–
Ashland . .	5,526 44	4,033 00	156 50	–	20 00	99 39	$947 75	87 20	182 60	–
Ayer . .	3,625 93	3,500 00	150 00	–	12 00	69 74	–	–	128 63	–
Bedford . .	1,800 00	1,800 00	75 00	–	20 00	134 71	–	–	57 64	–
Belmont . .	6,184 52	4,650 00	240 00	–	17 50	77 70	–	–	94 02	–
Billerica . .	3,217 63	2,800 00	215 00	–	50 00	63 15	–	–	91 66	–
Boxborough .	706 44	655 01	38 93	–	12 50	4 22	–	–	2 50	–
Burlington .	1,200 00	1,200 00	10 00	–	15 00	20 78	–	–	8 44	–
Cambridge .	161,724 34	140,686 60	3,015 00	$2,700 00	300 00	4,204 00	7,936 00	–	5,582 56	–
Carlisle . .	700 00	700 00	30 00	–	20 00	5 00	–	–	13 00	–
Chelmsford .	4,902 50	4,500 00	230 22	230 22	–	89 46	–	–	82 82	–
Concord . .	8,893 56	8,221 50	389 00	325 00	–	416 64	13,885 00	29 24	295 14	–
Dracut . .	3,600 00	3,000 00	150 00	150 00	23 37	39 15	–	14 21	477 07	–
Dunstable .	836 43	600 00	28 00	–	10 80	63 88	–	–	–	–
Everett . .	11,034 44	9,899 88	150 00	–	15 00	417 98	–	87 06	374 74	$104 00
Framingham .	15,932 00	14,800 00	650 00	650 00	66 00	522 00	9,992 07	–	599 50	–
Groton . .	5,300 00	4,700 00	200 00	–	18 00	200 00	–	–	182 00	–

Maynard . .	3,827 24	3,500 00	80 00	–	10 00	192 05	–	60 00	40 00	–
Medford . .	32,531 00	23,367 00	1,150 00	800 00	50 00	749 00	–	6,265 00	950 00	–
Melrose . .	13,969 31	11,000 00	325 00	–	15 00	520 86	–	84 00	893 08	50 00
Natick . .	17,875 00	16,000 00	375 00	–	–	421 00	–	–	1,079 00	–
Newton . .	85,898 86	69,249 59	3,000 00	2,700 00	288 00	6,630 40	–	2,784 17	3,946 70	–
North Reading,	1,670 07	1,600 00	74 50	–	6 50	13 00	–	–	103 48	–
Pepperell . .	2,650 55	2,400 00	100 00	100 00	29 00	25 00	–	–	98 55	–
Reading . .	9,007 41	8,000 00	275 00	–	50 00	170 45	–	–	529 55	–
Sherborn . .	2,964 63	1,800 00	141 75	–	30 00	27 26	–	686 72	73 15	–
Shirley . .	1,787 87	2,000 00	163 82	–	11 00	175 00	–	–	265 57	–
Somerville .	79,624 00	67,233 00	1,800 00	1,800 00	75 00	1,711 00	–	6,275 00	–	–
Stoneham .	12,864 26	11,750 00	400 00	–	8 50	485 51	–	–	428 75	–
Stow . .	1,800 00	1,700 00	75 00	75 00	25 00	25 44	–	108 00	60 00	–
Sudbury . .	5,090 00	2,000 00	300 00	–	15 00	100 00	2,500 00	150 00	25 00	–
Tewksbury .	2,270 23	2,000 00	150 00	–	15 00	21 00	–	45 00	52 89	–
Townsend .	4,925 52	3,400 00	100 00	100 00	35 00	25 00	–	782 60	488 64	–
Tyngsborough .	1,103 80	1,150 00	50 00	–	23 00	59 00	–	–	15 00	–
Wakefield .	13,000 00	11,500 00	200 00	–	40 00	478 10	–	500 00	403 07	–
Waltham . .	56,863 28	34,363 28	1,700 00	1,700 00	30 00	464 50	22,500 00	370 00	916 99	–
Watertown .	17,207 85	15,020 00	300 00	–	50 00	929 04	–	1,595 67	–	–
Wayland . .	4,315 07	4,000 00	95 00	–	15 00	165 47	–	–	39 60	–
Westford .	3,311 65	3,000 00	150 00	150 00	35 00	22 25	1,179 97	–	141 00	–
Weston . .	4,308 00	3,550 00	240 00	–	18 00	240 00	–	–	260 00	–
Wilmington .	1,638 00	1,550 00	50 00	–	10 00	–	–	–	100 00	–
Winchester .	13,489 54	12,000 00	350 00	–	–	827 31	–	–	1,113 30	–
Woburn . .	27,637 45	30,000 00	800 00	800 00	15 00	1,792 18	–	–	1,743 62	–
Totals . .	$901,423 73	$770,279 86	$24,554 72	$16,882 22	$2,331 70	$30,937 53	$87,825 79	$29,531 57	$30,666 52	$320 56

MIDDLESEX COUNTY—Concluded.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS. Number of Academies.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Acton	–	–	$178 67	–	–	–	–	–	–	$179 56	–
Arlington	$5,384 00	$321 24	–	–	–	–	–	–	–	179 23	–
Ashby	–	–	54 27	–	–	–	–	–	–	216 98	–
Ashland	–	–	198 93	–	–	–	–	–	–	187 16	–
Ayer	–	–	–	–	–	–	1	8	$60 00	236 01	$30 50
Bedford	–	–	–	–	–	–	–	–	–	214 72	10 50
Belmont	–	–	–	–	–	–	2	16	750 00	190 97	–
Billerica	21,000 00	1,260 00	–	1	37	$222 00	1	29	6,000 00	183 56	–
Boxborough	–	–	–	–	–	–	–	–	–	205 28	–
Burlington	–	–	98 04	–	–	–	–	–	–	211 31	–
Cambridge	10,000 00	767 72	–	–	–	–	20	1,748	20,480 00	–	–
Carlisle	500 00	30 00	72 75	–	–	–	–	–	–	205 67	18 00
Chelmsford	–	–	236 07	–	–	–	–	–	–	193 92	–
Concord	4,300 00	236 75	–	–	–	–	4	49	1,280 00	152 21	38 05
Dracut	–	–	102 60	–	–	–	1	7	–	173 33	–
Dunstable	–	–	–	–	–	–	–	–	–	206 56	–
Everett	–	–	–	–	–	–	1	30	360 00	171 62	–
Framingham	1,259 00	75 54	317 49	–	–	–	3	30	500 00	196 60	–

Medford . .	–	–	–	–	–	–	–	–	–	124 79	124 79
Melrose . .	–	–	–	–	–	–	1	10	–	181 96	100 00
Natick . . .	–	–	–	–	–	–	–	–	–	255 81	63 95
Newton . .	–	–	712 50	2	232	17,107 00	12	163	6,117 00	–	–
North Reading .	–	–	–	–	–	–	–	–	–	215 23	30 00
Pepperell . .	–	–	–	–	–	–	1	12	75 00	182 19	19 00
Reading . .	–	–	–	–	–	–	2	18	324 00	197 53	35 87
Sherborn . .	19,500 00	1,250 00	70 96	1*	45	267 00	–	–	–	215 22	–
Shirley . . .	10,745 49	–	216 00	–	–	–	–	–	–	219 90	25 00
Somerville . .	–	–	–	–	–	–	1	540	–	–	–
Stoneham . .	–	–	–	–	–	–	–	–	–	235 10	36 00
Stow . . .	9,600 00	629 25	84 56	–	–	–	–	–	–	218 64	–
Sudbury . .	300 00	18 00	287 45	–	–	–	–	–	–	168 72	10 00
Tewksbury . .	–	–	–	–	–	–	–	–	–	168 22	–
Townsend . .	–	–	–	–	–	–	–	–	–	185 01	22 00
Tyngsborough .	3,000 00	133 32	–	–	–	–	–	–	–	210 24	–
Wakefield . .	–	–	–	–	–	–	–	–	–	184 52	–
Waltham . .	–	–	228 28	1	70	3,700 00	2	33	584 00	176 41	–
Watertown . .	–	–	–	–	–	–	1	7	–	85 06	–
Wayland . .	200 00	12 00	139 51	–	–	–	–	–	–	187 93	–
Westford . .	31,237 94	1,870 00	–	1	67	686 00	–	–	–	178 28	–
Weston . .	–	–	–	–	–	–	–	–	–	171 46	–
Wilmington . .	–	–	112 20	–	–	–	–	–	–	217 09	–
Winchester . .	–	–	–	–	–	–	2	18	552 00	156 98	44 43
Woburn . .	12,000 00	–	–	1	–	–	1	40	300 00	236 50	–
Totals . .	$174,709 42	$9,168 08	$3,763 16	9	659	$24,432 00	69	4,453	$43,935 00	$9,653 01	$647 45

* With High School.

NANTUCKET COUNTY.

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Nantucket . .	3,726	$2,352,123	11	560	304	425	–	28	265	415	373	·90	13

NORFOLK COUNTY.

TOWNS.	Population — State Census, 1880.	Valuation — 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Bellingham . . .	1,223	$552,076	9	215	154	241	2	12	146	184	168	·91	9
Braintree . .	3,855	2,938,275	17	669	406	847	9	55	478	618	517	·83	18
Brookline . .	8,053	23,723,300	30	1,303	–	1,418	–	162	–	1,105	1,023	·93	34
Canton . . .	4,523	3,116,218	18	939	537	1,002	3	53	591	755	683	·90	22
Cohasset . .	2,182	2,853,904	12	412	265	474	–	46	271	364	301	·82	13
Dedham . .	6,224	6,065,888	30	1,080	688	1,206	–	78	673	998	908	·91	31
Dover . . .	653	460,021	4	100	61	103	–	6	62	73	63	·89	4
Foxborough . .	2,951	1,466,044	12	521	332	483	3	33	293	397	372	·94	13
Franklin . .	4,051	1,809,980	16	642	381	666	–	34	389	529	477	·90	16
Holbrook . .	2,132	1,056,435	9	361	191	463	5	27	234	393	349	·88	10
Hyde Park . .	7,090	4,378,116	29	1,401	833	1,423	4	122	1,009	1,249	1,114	·89	31
Medfield . .	1,365	1,102,780	5	201	127	215	1	16	125	169	151	·89	5
Medway	3,955	1,531,030	18	746	457	816	2	57	478	651	584	·90	20

Weymouth . .	10,571	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	1,114	[illegible]	1,700	·88	52
Wrentham . .	2,482	1,258,344	12	393	241	443	3	31	275	343	312	·91	13
Totals . .	96,462	$89,424,009	422	17,225	9,723	18,819	88	1,309	10,310	15,262	13,603	·88	456

NANTUCKET COUNTY — CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No. of different female teachers in school-year.	No. of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No of Schools kept less than six months each.	HIGH SCHOOLS. No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	LENGTH. Months. Days.	Salary of Principal.
Nantucket . .	2	15	1	1	$90 00	$23 50	95-15	8-16	2	1	2	61	Taxation,	10	$900 00

NORFOLK COUNTY — CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No. of different female teachers in school-year.	No. of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No of Schools kept less than six months each.	HIGH SCHOOLS. No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	LENGTH. Months. Days.	Salary of Principal.
Bellingham . .	1	15	5	4	$50 00	$29 48	66-15	7-9	-	1	1	27	Taxation,	7-10	$375 00
Braintree . .	4	19	5	1	68 00	32 00	170	10	-	1	2	77	Taxation,	10	1,400 00
Brookline . .	3	31	12	12	187 50	63 30	292	9-17	-	1	4	122	Taxation,	10	2,700 00
Canton . .	3	19	3	2	100 00	37 58	180	10	-	1	2	71	Taxation,	10	1,200 00
Cohasset . .	2	14	2	1	62 50	38 81	119-10	9-19	-	1	2	113	Taxation,	10	1,000 00
Dedham . .	8	29	12	12	98 80	45 35	289-8	9-16	-	1	3	125	Taxation,	9-18	1,800 00
Dover . . .	2	4	2	2	32 00	32 00	36	9	-	-	-	-	-	-	-
Foxborough .	1	15	1	-	111 11	35 72	105	8-15	-	1	2	60	Taxation,	9	1,000 00
Franklin . .	3	20	5	5	60 00	60 26	133-10	8-6	-	1	1	41	Taxation,	9-15	1,000 00
Holbrook . .	2	10	5	3	100 00	36 94	90	10	-	1	2	65	Taxation,	10	1,000 00
Hyde Park . .	5	36	5	3	126 00	44 78	283-4	9-15	-	1	3	97	Taxation,	9-19	1,555 00
Medfield . .	5	4	4	3	48 33	36 00	47-3	9-8	-	1	1	66	Taxation,	9-10	800 00

Weymouth .	.	10	51	5	4	88 68	33 75	454-5	9-13	–	2	4	140	Taxation,	9-15	2,400 00
Wrentham .	.	4	14	4	3	91 67	33 50	97-10	8-3	–	1	1	31	Taxation,	9	800 00
Totals .	.	92	483	136	112	$91 70	$40 43	3970-1	9-8	–	23	47	1,710	–	–	$27,347 25

NANTUCKET COUNTY—CONTINUED.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880–81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expenses of printing reports, etc.	Expense of sundries,—books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Nantucket .	$4,437 61	$4,314 55	$100 00	–	$30 00	$426 42	$600 00	–	$45 00	–

NORFOLK COUNTY—CONTINUED.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880–81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expenses of printing reports, etc.	Expense of sundries,—books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Bellingham .	$1,950 47	$1,800 00	$85 00	$85 00	$21 00	$18 93	–	–	$150 47	–
Braintree .	8,634 76	7,000 00	308 60	–	–	182 85	–	$434 20	–	–
Brookline .	35,363 19	36,000 00	2,500 00	2,200 00	18 00	978 82	–	850 00	550 00	–
Canton . .	14,077 95	10,400 00	1,115 00	1,115 00	61 20	979 26	–	560 00	700 28	–
Cohasset . .	5,807 08	5,500 00	260 00	200 00	30 00	212 64	–	206 94	162 96	–
Dedham . .	23,669 98	21,435 00	1,300 00	1,050 00	63 00	417 88	–	797 50	656 60	–
Dover . .	1,378 84	1,100 00	30 00	30 00	25 00	83 88	–	–	79 18	–
Foxborough .	5,450 07	5,200 00	230 00	–	35 00	224 98	–	–	125 54	$38 00
Franklin . .	6,788 29	6,300 00	475 50	–	40 00	–	–	239 26	115 05	–
Holbrook .	5,000 00	4,700 00	225 00	–	–	–	–	–	300 00	–
Hyde Park .	22,319 02	19,000 00	400 00	–	30 00	1,629 55	–	225 00	810 47	–

Walpole . .	6,250 14	5,300 00	170 00	–	–	170 83	–	–	588 31	110 00
Weymouth .	32,363 93	24,394 49	1,246 25	600 00	78 00	985 39	–	5,483 85	1,369 02	–
Wrentham .	5,721 82	4,500 00	291 40	–	10 00	118 36	1,901 15	61 15	76 39	–
Totals . .	$288,378 53	$244,827 68	$13,517 51	$8,215 00	$648 45	$10,835 06	$5,901 15	$13,443 17	$7,843 53	$298 00

NANTUCKET COUNTY—CONCLUDED.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS.							
				Number of Academies.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Nantucket . .	$38,000 00	$2,080 00	–	1	78	$610 00	1	78	$610 00	$205 48	$60 00

NORFOLK COUNTY—CONCLUDED.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	Number of Academies.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Bellingham . .	$418 16	$25 09	$277 07	–	–	–	–	–	–	$220 69	–
Braintree . .	6,700 00	250 00	424 00	1	63	$650 00	–	–	–	221 73	$45 00
Brookline . .	–	–	–	–	–	–	–	–	–	–	–
Canton . .	–	–	402 14	–	–	–	–	–	–	191 95	–
Cohasset . .	1,000 00	40 40	217 64	–	–	–	–	–	–	190 88	22 07
Dedham . .	1,000 00	60 00	–	–	–	–	3	32	$1,500 00	108 83	40 00
Dover . . .	–	–	68 60	–	–	–	–	–	–	210 24	–
Foxborough . .	–	–	284 50	–	–	–	–	–	–	195 46	–
Franklin . .	100,000 00	6,000 00	–	1	128	2,960 00	2	51	460 00	212 18	53 09
Holbrook . .	–	–	144 00	–	–	–	–	–	–	189 32	–
Hyde Park . .	–	–	–	–	–	–	2	18	500 00	234 94	102 03
Medfield . .	3,760 20	228 11	–	–	–	–	–	–	–	170 19	–
Medway . .	100 00	6 00	–	–	–	–	–	–	–	225 26	25 42

Walpole . .	–	–	–	–	–	–				186 20	10 00
Weymouth . .	10,000 00	552 00	746 80	–	–	–	1	20	320 00	202 47	–
Wrentham . .	1,818 26	109 08	272 20	–	–	–	–	–	–	190 85	–
Totals . .	$282,458 23	$9,307 18	$3,449 77	3	205	$3,960 00	12	204	$5,180 00	$4,400 46	$335 11

PLYMOUTH COUNTY.

TOWNS.	Population – Census, 1880.	Valuation – 1881.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-year	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Abington . .	3,697	$1,760,938	16	632	387	714	8	64	405	618	533	·86	18
Bridgewater . .	3,620	2,020,479	19	653	362	671	3	65	384	578	532	·92	21
Brockton . .	13,608	6,876,427	43	2,267	1,204	2,444	–	145	1,313	2,004	1,769	·88	46
Carver . . .	1,039	515,194	8	174	122	218	5	21	122	173	157	·91	8
Duxbury . .	2,196	1,072,438	10	370	243	390	10	44	231	318	266	·83	11
East Bridgewater .	2,710	1,335,905	14	477	275	498	4	42	270	478	437	·91	15
Halifax . . .	542	261,419	4	82	51	83	3	3	47	65	58	·89	4
Hanover . .	1,897	1,069,181	9	330	230	300	2	22	202	282	240	·85	9
Hanson . . .	1,309	503,069	7	246	145	227	5	10	127	178	150	·84	7
Hingham . .	4,485	3,265,284	16	696	–	775	7	68	–	710	566	·80	18
Hull . . .	383	1,316,124	2	53	28	54	–	2	28	47	40	·85	2
Kingston . .	1,524	1,543,175	7	217	132	250	1	25	140	216	192	·88	7
Lakeville . .	1,008	462,545	9	220	163	197	6	15	146	161	120	·80	9
Marion . . .	958	583,505	6	168	96	179	–	17	96	156	143	·92	6
Marshfield . .	1,785	1,033,080	10	247	181	288	1	20	177	219	179	·82	10
Mattapoisett . .	1,365	1,261,659	6	205	116	224	1	33	115	192	164	·85	7
Middleborough .	5,237	2,641,970	24	869	564	958	4	93	584	789	684	·87	27
Pembroke . .	1,405	590,590	8	268	165	245	5	6	170	191	165	·86	8

Totals . .	74,024	$41,597,896	338	12,892	7,412	13,731	130	988	7,416	11,730	10,315	·88	359

SUFFOLK COUNTY.

Boston . . .	362,535	$665,554,597	468	57,703	–	59,768	–	4,736	24,462	50,957	44,885	·88	1,117
Chelsea . . .	21,785	15,761,537	63	3,648	2,157	4,169	–	267	1,740	3,159	2,877	·91	68
Revere . . .	2,263	2,448,745	9	401	259	416	2	14	327	370	335	·90	9
Winthrop . .	1,043	1,556,246	4	153	94	148	–	7	91	133	125	·94	4
Totals . .	387,626	$685,321,125	544	61,905	2,510	64,501	2	5,024	26,620	54,619	48,222	·88	1,198

PLYMOUTH COUNTY – CONTINUED.

TOWNS.	Whole No. of different male teachers in school-year.	Whole No. of different female teachers in school-year.	No. of teachers who have attended Normal Schools.	No. of teachers who have graduated from Normal Schools.	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No. of Schools kept less than six months each.	HIGH SCHOOLS.					
										No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	LENGTH. Months. Days.	Salary of Principal.
Abington . .	2	21	3	3	$97 50	$33 36	160	10	–	2	4	76	Taxation,	10	$1,000 00 950 00
Bridgewater .	5	21	18	17	75 50	34 00	159	9	–	1	3	85	Taxation,	9	1,100 00
Brockton . .	6	40	20	15	94 60	37 00	374	9-15	–	1	3	130	Taxation,	10	1,700 00
Carver . .	6	7	1	–	29 00	28 20	59-7	7-10	–	–	–	–	–	–	–
Duxbury . .	2	10	1	1	66 00	32 75	91	9-1	–	1	2	56	Partly tax,	10	1,000 00
E. Bridgewater .	3	16	5	5	74 50	28 75	124	9-2	–	1	2	42	Taxation,	10	1,050 00
Halifax . .	–	7	3	3	–	24 00	32	8	–	–	–	–	–	–	–
Hanover . .	1	12	4	3	72 00	30 00	81	9	–	1	1	43	Taxation,	9	648 00
Hanson . .	1	8	3	3	40 00	26 66	63-2	9	–	–	–	–	–	–	–
Hingham . .	7	14	9	8	78 67	40 33	160	10	–	1	2	91	Taxation,	10	1,600 00
Hull . . .	–	3	–	–	–	38 00	17-19	9	–	–	–	–	–	–	–
Kingston . .	1	9	6	6	120 00	36 66	65-5	9-5	–	1	1	44	Taxation,	9-5	1,110 00
Lakeville . .	1	14	2	2	25 00	23 67	72	8	–	–	–	–	–	–	–
Marion . .	3	5	2	1	41 00	26 40	43-11	8-2	–	–	–	–	–	–	–
Marshfield . .	–	15	6	5	–	29 34	89	8-18	–	–	–	–	–	–	–
Mattapoisett .	2	7	3	2	34 50	32 19	57-15	8-3	–	1	1	52	Part tax,	10	600 00
Middleborough .	6	32	8	6	56 70	31 38	214	9	–	1	2	82	Taxation,	9-10	1,100 00
Pembroke . .	1	12	3	3	32 00	25 25	72	9	–	–	–	–	–	–	–
Plymouth . .	4	31	6	5											

W. Bridgewater,	3	9	7	5	42 00	32 00	80	8	–	–	–	–	[illegible]	[illegible]	[illegible]
Totals . .	76	382	131	109	$62 83	$31 39	2995-4	8-17	–	16	31	1,024	–	–	$17,858 00

SUFFOLK COUNTY — CONTINUED.

Boston . .	135	982	550*	550*	$254 26	$72 95	2041	10-1	–	11	91	2,093	Taxation,	10	$37,080 00†
Chelsea . .	4	63	18	17	170 00	54 53	650	10	–	1	5	260	Taxation,	10	2,500 00
Revere . .	1	12	4	3	80 00	37 50	87-5	10	–	–	–	–	–	–	–
Winthrop . .	1	3	–	–	54 00	34 00	37	9-5	–	–	–	–	–	–	–
Totals . .	141	1,060	572	570	$249 21	$71 34	2815-5	10	–	12	96	2,353	–	–	$39,580 00

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* As returned in April, 1880.

† Eleven Principals: six at $3,780, five at $2,880.

PLYMOUTH COUNTY — CONTINUED.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880–81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expenses of printing reports, etc.	Expense of sundries, — books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Abington . .	$9,578 96	$7,600 00	$268 54	-	$60 00	$812 20	-	-	$559 91	-
Bridgewater .	8,600 00	7,800 00	344 00	-	30 00	400 00	-	$225 00	200 00	-
Brockton . .	26,276 75	22,700 00	539 38	-	140 00	800 00	-	1,100 00	2,295 00	-
Carver . .	1,200 00	1,200 00	62 00	-	-	2 65	-	462 75	14 26	-
Duxbury . .	3,564 73	2,500 00	241 52	-	35 00	152 33	-	-	373 51	-
E. Bridgewater,	5,700 00	5,000 00	204 36	-	64 00	241 41	-	2,214 19	457 14	-
Halifax . .	700 00	700 00	40 00	-	41 00	5 00	-	-	10 00	-
Hanover . .	3,264 00	2,750 00	140 00	-	25 00	-	-	-	337 00	-
Hanson . .	3,408 88	1,600 00	127 50	-	25 00	187 58	$1,248 08	110 21	110 51	-
Hingham .	13,381 35	9,976 41	360 00	-	-	219 58	-	376 75	2,448 61	-
Hull . .	726 85	800 00	27 00	-	15 00	3 00	-	-	6 13	-
Kingston . .	3,850 00	3,250 00	50 00	-	100 00	250 00	-	-	273 00	-
Lakeville .	1,481 55	1,421 77	100 00	-	25 00	5 10	-	-	20 00	-
Marion . .	1,447 00	1,200 00	60 00	$60 00	18 00	50 00	-	-	119 00	-
Marshfield .	2,866 25	2,500 00	136 00	-	34 00	59 25	-	-	137 00	-
Mattapoisett .	1,950 00	1,950 00	55 00	-	9 00	36 65	-	80 93	30 89	-
Middleborough,	10,438 38	9,000 00	396 00	-	27 00	247 56	-	254 00	513 82	-
Pembroke .	1,763 00	1,500 00	172 31	-	18 00	77 90	-	-	111 03	-
Plymouth .	17,837 00	16,384 00	500 00	500 00	68 00	120 00	3,000 00	2,000 00		
Plympton .	1,269 15	800 00	50 00							
Rochester										

Totals . .	$152,593 08	$128,197 83	$4,923 41	$560 00	$859 50	$4,675 70	$5,631 22	$8,673 59	$10,870 45	-

SUFFOLK COUNTY — CONTINUED.

Boston . .	$1,775,037 15	$1,300,090 41	$52,470 00	$4,200 00	$2,000 00	$170,910 95	$215,359 64	$145,913 55	-	-
Chelsea . .	54,026 72	46,056 39	1,733 33	1,733 33	79 00	1,270 91	-	516 50	$1,094 00	-
Revere . .	5,075 02	5,000 00	155 00	-	24 00	96 77	-	286 12	62 84	-
Winthrop .	1,664 88	1,500 00	65 00	-	14 00	46 13	-	-	94 09	-
Totals . .	$1,835,803 77	$1,352,646 80	$54,423 33	$5,933 33	$2,117 00	$172,324 76	$215,359 64	$146,716 17	$1,250 93	-

PLYMOUTH COUNTY—CONCLUDED.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS.							
				Number of Academies.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Abington . .	–	–	–	–	–	–	–	–	–	$209 77	–
Bridgewater . .	$5,300 00	$352 12	$295 73	1	–	–	–	–	–	217 03	$100 00
Brockton . .	300 00	17 00	324 44	–	–	–	1	20	$500 00	205 61	–
Carver . . .	5,592 00	100 00	95 91	–	–	–	–	–	–	221 21	–
Duxbury . .	24,600 00	1,490 00	228 59	1*	–	–	–	–	–	184 14	17 20
East Bridgewater .	–	–	–	–	–	–	–	–	–	187 56	–
Halifax . .	–	–	–	–	–	–	–	–	–	208 11	19 50
Hanover . .	3,000 00	172 00	99 00	1	40	$600 00	–	–	–	231 78	5 00
Hanson . . .	–	–	80 05	–	–	–	1	10	450 00	222 44	–
Hingham . .	29,600 00	1,758 35	–	1	72	462 00	3	40	800 00	168 79	–
Hull . . .	–	–	–	–	–	–	–	–	–	205 48	–
Kingston . .	–	–	108 70	–	–	–	–	–	–	174 10	–
Lakeville . .	–	–	–	–	–	–	–	–	–	220 51	–
Marion . . .	–	–	66 61	–	–	–	2	44	2,000 00	214 64	–
Marshfield . .	–	–	123 08	–	–	–	–	–	–	175 86	25 05
Mattapoisett . .	12,052 00	382 78	60 75	–	–	–	–	–	–	168 76	–
Middleborough .	35,000 00	2,250 00	–	–	–	–	3	75	1,000 00	236 34	13 08
Pembroke . .	–	–	–	–	–	–	–	–	–	224 78	–
Plymouth . .	–	–	234 00	–	–	–	2	35	–	211 02	–

Totals . .	$115,444 00	$6,522 25	$2,629 77	4	112	$1,062 00	13	238	$4,850 00	$5,629 73	$281 10

SUFFOLK COUNTY — CONCLUDED.

Boston . . .	$46,935 04	$2,359 03	$152,971 91	19	4,474	$281,862 00	72	3,158	$236,850 00	–	–
Chelsea . .	–	–	–	–	–	–	2	370	3,600 00	–	–
Revere . . .	–	–	–	–	–	–	1	10	50 00	$186 89	–
Winthrop . .	–	–	–	–	–	–	–	–	–	162 29	–
Totals . .	$46,935 04	$2,359 03	$152,971 91	19	4,474	$281,862 00	75	3,538	$240,500 00	$349 18	–

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* Academy and High School united.

WORCESTER COUNTY.

TOWNS.	Population — Census, 1880.	Valuation — 1880.	No. of Public Schools.	No. of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Average attendance in all the Public Schools during the school-ye r.	The per cent of attendance based upon the aver'ge No. belonging.	No. of teachers required by the Public Schools.
Ashburnham . . .	1,666	$921,683	13	306	213	341	1	45	178	339	286	·85	14
Athol . . .	4,307	2,334,235	19	677	329	786	5	41	432	611	584	·95	19
Auburn . . .	1,317	474,110	7	229	140	240	2	9	134	194	155	·80	7
Barre . . .	2,418	1,472,225	13	345	256	410	2	23	179	310	279	·89	14
Berlin . . .	977	491,263	5	191	106	202	5	17	102	150	125	·83	5
Blackstone . .	4,908	2,016,500	20	958	591	1,087	28	42	673	810	712	·87	23
Bolton . . .	903	486,918	7	148	114	204	6	35	111	144	131	·91	7
Boylston . .	854	506,360	7	158	105	173	4	40	105	141	125	·88	7
Brookfield . .	2,820	1,218,253	14	485	340	565	6	51	327	446	404	·90	14
Charlton . .	1,900	1,028,280	12	299	211	356	11	52	217	269	239	·88	12
Clinton . . .	8,030	4,823,592	26	1,671	956	1,594	–	60	953	1,251	1,127	·90	29
Dana . . .	736	284,359	6	108	53	133	3	9	64	104	93	·89	6
Douglas . .	2,241	1,118,597	13	412	248	405	17	33	220	363	291	·80	13
Dudley . . .	2,804	930,490	15	603	414	743	21	56	448	538	449	·83	15
Fitchburg . .	12,405	9,508,584	48	2,344	1,353	2,625	18	237	1,343	1,993	1,771	·89	52
Gardner . . .	4,988	2,466,381	17	839	462	872	3	60	438	744	607	·82	19
Grafton . .	4,030	1,958,288	20	810	536	907	13	23	491	808	646	·78	21
Hardwick . .	2,233	1,031,245	14	454	290	490	4	39	296	431	375	·87	14

Northbridge . .	4,053	1,877,321	16	850	510	798	7	45	577	656	672	·89	16
North Brookfield .	4,459	1,882,007	18	799	526	810	9	73	487	647	587	·91	19
Oakham . .	869	359,828	6	135	92	178	10	22	92	124	113	·91	6
Oxford . . .	2,604	1,353,750	13	495	353	563	6	37	360	395	354	·89	13
Paxton . . .	592	281,087	6	116	–	135	1	19	74	109	82	75	6
Petersham . .	1,109	593,736	9	170	99	205	4	31	109	152	136	·89	9
Phillipston . .	621	271,980	6	119	77	133	1	16	71	92	90	·98	6
Princeton . .	1,100	846,942	9	166	–	190	4	37	95	150	133	·88	9
Royalston . .	1,192	684,130	11	194	143	249	3	68	143	191	177	·93	11
Rutland . .	1,060	491,258	10	229	134	256	2	34	134	190	171	·90	10
Shrewsbury . .	1,500	1,103,450	9	267	197	318	7	44	197	264	234	·89	10
Southborough .	2,142	1,294,743	11	348	238	300	5	23	214	279	247	·89	11
Southbridge . .	6,465	2,983,557	28	1,279	–	1,375	6	35	774	1,025	902	·88	29
Spencer . . .	7,466	3,178,040	27	1,492	821	1,521	2	74	773	1,202	1,022	·85	30
Sterling . .	1,414	921,848	12	227	131	245	–	41	147	204	188	·92	12
Sturbridge . .	2,062	1,010,900	15	376	263	434	3	15	251	315	277	·88	15
Sutton . . .	3,105	1,367,598	16	723	415	619	7	36	310	452	348	·77	16
Templeton . .	2,789	1,071,227	14	542	320	664	14	46	604	467	425	·90	15
Upton . . .	2,023	831,599	11	332	210	353	6	42	170	300	264	·87	11
Uxbridge . .	3,111	1,935,280	16	462	280	462	14	31	266	415	380	·91	16
Warren . . .	3,889	2,051,191	18	861	510	818	2	56	506	597	514	·86	20
Webster . .	5,696	2,085,747	16	939	628	1,160	5	31	674	783	707	·90	17
Westborough .	5,214	2,476,685	17	837	637	879	8	86	609	678	622	·90	20
West Boylston .	2,994	1,032,280	11	614	338	619	11	48	343	401	356	·87	12
West Brookfield .	1,917	865,352	11	337	203	399	2	39	214	307	246	·80	11
Westminster . .	1,652	812,484	13	295	177	309	4	34	171	236	203	·86	13
Winchendon . .	3,722	1,843,820	18	682	400	697	5	64	480	603	512	·85	19
Worcester . .	58,295	42,606,539	182	10,988	6,867	10,887	–	620	6,796	8,419	7,697	·91	204
Totals . .	226,885	$131,054,438	989	42,094	25,076	44,842	344	3,265	26,240	34,868	30,961	·89	1,052

WORCESTER COUNTY — CONTINUED.

TOWNS.	Whole No. of different male teachers in school year.	Whole No. of different female teachers in school-year.	No. of teachers who have attended Normal Schools	No. of teachers who have graduated from Normal Schools	Av'ge wages per month of male teachers in Public Schools.	Av'ge wages per month of female teachers in Public Schools.	Aggregate of months all the Public Schools have been kept during the school-year.	Average No. of months the Public Schools have been kept for the entire year.	No. of Schools kept less than six months each.	HIGH SCHOOLS. No. of High Schools.	No. of teachers.	No. of pupils.	How supported.	Length. Months. Days.	Salary of Principal.
Ashburnham . .	3	15	–	–	$47 33	$25 33	77-8	7	–	1	6	37	Taxation,	9-8	$700 00
Athol . . .	3	21	2	2	87 00	33 00	142-15	7-10	–	1	1	53	Taxation,	9-10	1,200 00
Auburn . .	2	8	1	1	32 00	24 00	51	7	–	–	–	–	–	–	–
Barre . . .	4	17	7	7	52 59	30 02	99-15	7-3	–	1	2	41	Taxation,	9	750 00
Berlin . .	–	9	4	3	–	32 00	36-5	7-5	–	–	–	–	–	–	–
Blackstone . .	1	27	4	1	96 29	30 64	172-15	8-13	–	1	2	65	Taxation,	9	866 66
Bolton . .	2	9	3	1	60 00	28 00	54-15	7-17	–	1	1	44	Not by tax,	9-15	600 00
Boylston . .	1	8	1	–	50 00	31 50	52	7-11	–	1	1	18	Taxation,	3	150 00
Brookfield . .	3	17	5	3	50 20	32 73	110-5	7-18	1	1	1	48	Taxation,	9-10	800 00
Charlton . .	7	13	1	1	33 00	27 92	90	7-10	–	–	–	–	–	–	–
Clinton . .	2	27	3	3	99 00	42 22	253-10	9-15	–	1	2	71	Taxation,	9-15	1,500 00
Dana . . .	–	9	1	–	–	20 34	42	7	–	–	–	–	–	–	–
Douglas . .	1	16	2	2	100 00	30 60	104-15	8-3	–	1	1	45	Taxation,	9	900 00
Dudley . .	6	16	–	–	43 67	29 40	120-10	8-1	1	1	1	42	Taxation,	10	1,000 00
Fitchburg . .	10	55	10	8	101 30	38 40	450	9-12	–	1	5	229	Taxation,	10	1,500 00
Gardner . .	1	21	5	4	115 00	41 25	128	7-7	–	1	2	88	Taxation,	10	1,150 00
Grafton . .	2	21	6	5	71 00	36 00	156	8-10	–	1	2	51	Taxation,	9	990 00
Hardwick . .	4	18	2	1	34 20	25 58	89-10	6-7	1	–	–	–	–	–	–
Harvard . .	1	12	1	–	32 00	30 05	64-10	6-9	–	–	–	–	–	–	–

Oakham . .	2	8	1	1	24 00	24 00	39	6-10	–	–	–	–	–	–	–
Oxford . .	6	14	2	–	50 00	31 00	105-19	8-9	–	1	1	45	Taxation,	10	700 00
Paxton . .	3	7	2	1	30 00	26 80	40-10	6-14	–	–	–	–	–	–	–
Petersham . .	1	14	4	2	28 00	26 40	62-15	6-19	1	1	1	37	Taxation,	7-10	300 00
Phillipston . .	–	14	2	1	–	24 66	41	7-10	–	–	–	–	–	–	–
Princeton . .	4	4	–	–	30 80	25 30	58-10	6-10	–	–	–	–	–	–	–
Royalston . .	3	15	4	4	50 00	25 86	75-3	6-17	–	–	–	–	–	–	–
Rutland . .	4	11	–	–	34 25	23 88	60	6	–	–	–	–	–	–	–
Shrewsbury .	1	12	2	1	74 66	30 20	78-12	8-14	–	1	1	40	Taxation,	9	672 00
Southborough .	2	14	4	3	64 00	31 33	95-10	8-14	–	1	1	46	Taxation,	10	800 00
Southbridge .	3	26	1	–	78 66	32 40	233-5	8-7	–	1	2	45	Taxation,	10	1,000 00
Spencer . .	4	35	16	4	68 00	33 65	218-10	8-4	–	1	3	97	Taxation,	9-16	1,100 00
Sterling . .	3	14	5	4	30 66	30 04	88-10	7-7	–	–	–	–	–	–	–
Sturbridge . .	1	17	1	1	24 00	25 48	128-10	8-12	1	–	–	–	–	–	–
Sutton . .	2	20	–	–	52 00	29 88	118-2	7-7	1	1	1	38	Taxation,	9	700 00
Templeton . .	1	19	–	2	115 00	30 00	107-10	7-10	–	1	2	84	Taxation,	10	1,150 00
Upton . .	3	12	3	3	59 37	33 70	84	7-15	–	1	1	57	Taxation,	9	883 34
Uxbridge . .	3	16	4	3	70 00	34 00	123-13	7-16	–	1	1	30	Taxation,	9-10	1,150 00
Warren . .	6	30	11	10	62 66	30 82	150-5	8-10	1	1	2	50	Taxation,	10	900 00
Webster . .	5	15	–	–	49 85	29 11	141-10	8-17	–	1	2	58	Taxation,	10	1,100 00
Westborough .	1	22	6	6	92 28	41 20	137-01	8-1	–	1	3	94	Taxation,	9-15	900 00
West Boylston .	3	15	6	2	52 00	36 00	83-10	7-16	–	1	5	110	Taxation,	9	810 00
West Brookfield .	2	15	1	1	52 88	28 69	92-3	8-5	1	–	–	–	–	–	–
Westminster .	1	14	7	6	65 00	27 92	92-5	7-2	1	1	1	79	Partly,	9	585 00
Winchendon .	2	22	2	2	60 08	32 05	119-15	6-13	–	1	2	61	Taxation,	9	766 66
Worcester . .	14	190	116	116	149 46	49 97	1758-4	10	–	1	13	601	Taxation,	10	2,430 00
Totals . .	163	1,164	818	261	$68 05	$35 28	8159-5	8-5	9	40	88	3,059	–	–	$39,093 66

WORCESTER COUNTY — CONTINUED.

TOWNS.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school rooms, for the school-year 1880–81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expenses of printing reports, etc.	Expense of sundries, — books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Ashburnham . .	$3,181 43	$2,800 00	$98 00	–	$18 50	–	–	$229 11	$54 32	–
Athol . .	6,723 27	6,500 00	300 00	–	28 00	$322 55	–	–	–	–
Auburn . .	1,150 00	1,150 00	73 50	–	20 00	9 50	–	–	50 00	–
Barre . .	4,313 88	4,600 00	189 00	–	14 00	12 75	–	–	35 00	–
Berlin . .	996 91	1,000 00	56 00	–	13 00	33 82	–	–	25 00	–
Blackstone .	8,865 49	7,500 00	250 00	$250 00	–	390 00	–	940 00	329 00	–
Bolton . .	1,286 71	1,200 00	85 50	–	13 00	30 53	$1,379 95	–	1 80	–
Boylston . .	1,929 87	1,750 00	53 50	–	12 20	20 17	–	82 00	12 00	–
Brookfield .	4,918 00	4,800 00	120 00	–	25 00	78 20	–	232 30	150 00	$37 00
Charlton . .	2,871 44	3,000 00	134 75	–	9 00	8 30	–	–	38 16	–
Clinton . .	20,438 54	17,361 72	350 00	–	92 00	408 93	–	2,244 49	147 21	–
Dana . .	953 96	700 00	55 00	–	19 00	4 22	–	–	5 50	–
Douglas . .	4,348 10	4,100 00	100 00	–	20 00	245 00	–	225 00	–	–
Dudley . .	4,432 25	4,200 00	116 00	–	–	148 90	–	–	203 42	–
Fitchburg .	35,533 92	30,500 00	1,800 00	1,800 00	25 00	2,609 02	–	2,904 01	1,551 84	–
Gardner . .	7,589 22	7,500 00	375 00	–	50 00	218 83	–	365 17	214 42	–
Grafton . .	8,612 85	7,100 00	722 35	–	25 00	192 77	–	233 10	339 63	–
Hardwick .	6,053 20	2,300 00	147 55	–	18 00	11 05	3,550 30	–	26 30	–
Harvard . .	2,185 45	2,000 00	110 00	110 00	21 00	35 00	1,400 00	–	37 50	–

Oakham	1,120 80	750 00	94 00	-	10 00	22 40	-	-	24 89	16 00
Oxford	4,841 85	4,000 00	57 00	-	50 00	126 84	-	-	385 00	-
Paxton	1,167 21	1,000 00	65 00	-	8 00	31 13	-	-	45 99	-
Petersham	1,718 98	1,851 00	125 00	-	18 00	100 21	-	-	94 48	-
Phillipston	1,403 01	800 00	55 00	-	16 00	5 00	-	244 53	15 00	-
Princeton	1,569 29	1,600 00	101 51	-	5 50	11 04	-	416 71	29 94	-
Royalston	1,500 00	1,500 00	112 25	-	21 40	190 83	-	405 52	20 57	187 50
Rutland	1,707 33	1,600 00	96 50	-	12 00	85 81	-	-	59 87	-
Shrewsbury	5,434 52	3,000 00	200 00	-	-	144 81	1,773 15	-	127 46	-
Southborough	4,823 33	4,500 00	150 00	-	40 00	242 50	-	1,238 35	191 15	-
Southbridge	11,335 00	10,314 00	355 00	-	18 90	119 00	-	320 00	131 00	-
Spencer	15,818 95	10,350 00	291 75	-	35 00	181 36	4,153 00	457 98	349 86	-
Sterling	3,032 64	2,800 00	122 50	-	15 00	-	1,358 65	-	29 92	-
Sturbridge	3,713 42	3,500 00	266 71	-	13 15	28 92	-	-	83 08	-
Sutton	4,250 79	4,150 00	150 00	-	-	30 67	-	-	-	-
Templeton	4,672 95	4,500 00	140 50	-	35 00	27 94	-	213 36	57 48	-
Upton	4,308 45	4,000 00	175 50	-	24 00	95 41	-	269 47	17 47	-
Uxbridge	5,927 90	6,000 00	140 00	-	75 00	35 00	-	-	50 00	-
Warren	7,342 64	6,000 00	285 27	-	40 46	259 00	-	191 08	313 19	-
Webster	8,300 00	6,300 00	300 00	-	25 00	138 25	1,893 17	-	528 01	-
Westborough	9,436 00	8,000 00	600 00	600 00	-	139 00	-	491 00	206 00	-
W. Boylston	3,591 05	3,300 00	161 77	-	-	326 63	-	-	46 46	-
W. Brookfield	3,310 54	3,000 00	133 00	-	19 18	32 75	-	-	44 73	-
Westminster	3,151 70	2,750 00	109 25	-	-	91 86	-	38 00	162 59	174 00
Winchendon	5,518 38	4,824 63	267 75	-	51 05	165 87	-	-	209 08	-
Worcester	143,827 97	125,305 90	3,313 34	2,430 00	183 37	8,577 38	23,731 49	1,465 55	4,982 43	-
Totals	**$477,297 88**	**$408,106 93**	**$16,804 06**	**$6,615 00**	**$1,529 11**	**$18,162 39**	**$41,188 04**	**$16,790 82**	**$14,293 13**	**$414 50**

WORCESTER COUNTY — CONCLUDED.

TOWNS.	Amount of local funds the income of which can be appropriated only for the support of Schools and Academies.	Income of local funds.	Income of surplus revenue and other funds, including the dog tax, used at the option of the town.	ACADEMIES AND PRIVATE SCHOOLS.							
				Number of Academies.	Whole No. attending for the year.	Amount of tuition paid.	No. of Private Schools.	Whole No. attending for the year.	Estimated am'nt of tuition.	Town's share of school-fund payable Jan. 25, 1881.	How much of said fund was used for apparatus and books of reference.
Ashburnham	$127,602 31	$6,585 46	$116 95	1	114	$735 00	1	8	$18 40	$235 63	$53 70
Athol	–	–	214 04	–	–	–	–	–	–	212 95	34 00
Auburn	–	–	113 91	–	–	–	–	–	–	223 72	–
Barre	–	–	178 61	–	–	–	–	–	–	185 24	90 00
Berlin	2,020 00	121 20	86 89	–	–	–	–	–	–	217 20	–
Blackstone	–	–	357 31	–	–	–	2	30	250 00	243 56	–
Bolton	12,000 00	720 00	–	–	–	–	–	–	–	217 75	–
Boylston	–	–	–	–	–	–	–	–	–	216 59	–
Brookfield	–	–	166 80	–	–	–	–	–	–	195 58	–
Charlton	2,035 00	101 40	–	–	–	–	–	–	–	233 19	–
Clinton	–	–	–	–	–	–	1	40	600 00	254 07	–
Dana	–	–	30 20	–	–	–	–	–	–	211 22	–
Douglas	941 33	56 48	–	–	–	–	1	50	720 00	240 58	–
Dudley	6,000 00	300 00	151 52	1	14	275 00	–	–	–	255 91	–
Fitchburg	–	–	119 72	–	–	–	1	30	400 00	218 45	221 36
Gardner	1,000 00	50 00	255 89	–	–	–	–	–	–	223 93	–
Grafton	1,000 00	65 00	–	–	–	–	–	–	–	228 74	–
Hardwick	200 00	12 00	108 08	–	–	–	–	–	–	237 77	–
Harvard	–	–	–	1	37	300 00	–	–	–	222 45	–
Holden	3,366 00	202 00	194 44	–	–	–	–	–	–	246 45	–
Hubbardston	1,200 00	72 00	–	–	–	–	–	–	–	222 93	26 25

North Brookfield .	–	–	191 26	–	–	–	1	27	75 00	229 01	–
Oakham . .	–	–	92 72	–	–	–	–	–	–	218 16	13 50
Oxford . . .	–	–	–	–	–	–	–	–	–	196 26	–
Paxton . . .	–	–	–	–	–	–	–	–	–	212 40	6 50
Petersham . .	735 00	44 00	79 47	–	–	–	–	–	–	216 40	–
Phillipston . .	–	–	73 11	–	–	–	–	–	–	212 19	–
Princeton . .	–	–	–	–	–	–	1	23	50 00	215 80	–
Royalston . .	6,500 00	353 06	70 99	–	–	–	–	–	–	219 61	60 85
Rutland . .	–	–	–	–	–	–	1	18	63 00	221 47	–
Shrewsbury . .	–	–	–	–	–	–	–	–	–	172 45	36 40
Southborough .	–	–	84 50	1	50	12,000 00	2	23	800 00	184 84	273 90
Southbridge . .	–	–	–	–	–	–	–	–	–	204 22	–
Spencer . .	–	–	–	–	–	–	1	40	160 00	243 40	12 00
Sterling . .	–	–	–	–	–	–	1	19	190 00	223 71	–
Sturbridge . .	–	–	–	–	–	–	–	–	–	253 27	13 50
Sutton . . .	2,000 00	120 00	–	–	–	–	1	40	200 00	219 86	54 88
Templeton . .	–	–	139 34	–	–	–	–	–	–	195 68	48 89
Upton . . .	–	–	–	–	–	–	1	30	375 00	231 03	–
Uxbridge . .	–	–	196 95	–	–	–	–	–	–	196 94	20 00
Warren . .	–	–	–	–	–	–	1	23	140 00	226 49	30 00
Webster . .	–	–	259 60	–	–	–	–	–	–	245 78	61 44
Westborough .	–	–	–	–	–	–	2	26	350 00	225 32	41 25
West Boylston .	–	–	–	–	–	–	–	–	–	205 23	–
West Brookfield .	–	–	–	–	–	–	–	–	–	234 62	31 15
Westminster .	–	–	–	–	–	–	–	–	–	226 16	10 00
Winchendon .	–	–	–	–	–	–	3	80	130 00	210 57	17 71
Worcester . .	1,458 50	81 30	–	3	200	2,500 00	2	1,400	1,500 00	–	–
Totals . .	$235,491 47	$9,593 90	$3,957 65	8	415	$15,810 00	29	2,013	$7,771 40	$12,518 09	$1,428 78

RECAPITULATION.

COUNTIES.	Population — Census, 1880.	Valuation — 1881.	No. of Public Schools.	No of persons in town May 1, 1880, between 5 and 15 years of age.	No. of persons in town May 1, 1880, between 8 and 14 years of age.	No. of different pupils of all ages in the Public Schools during the school-year.	No. attending within the year under 5 years of age.	No. attending within the year over 15 years of age.	No. attending within the year between 8 and 14 years of age.	Average No. belonging to all the Schools.	Av'ge attendance in all the Public Schools during the school-year.	The per cent of attendance based upon the aver'ge No. belonging.
Barnstable . .	31,945	$15,555,286	164	5,675	3,250	6,240	21	806	3,352	5,305	4,637	·87
Berkshire . .	69,049	34,197,842	352	14,011	7,918	14,567	178	1,048	8,316	11,041	9,694	·88
Bristol . .	139,1 1	103,294,547	471	24,584	11,451	25,333	126	1,507	15,373	19,410	17,308	·89
Dukes . .	4,305	3,190,798	25	602	382	695	11	84	360	611	544	·89
Essex . . .	244,640	162,413,423	811	43,028	20,796	42,206	155	2,830	24,001	35,319	30,988	·88
Franklin . .	36,000	15,808,509	251	6,458	4,319	7,157	132	573	3,842	5,616	5,018	·89
Hampden . .	104,117	69,758,223	373	19,125	11,643	18,302	130	1,267	10,130	13,182	11,802	·90
Hampshire . .	47,235	25,285,744	277	8,785	5,622	9,423	129	759	5,485	7,460	6,663	·89
Middlesex . .	317,951	268,986,013	973	55,736	24,620	58,998	239	4,856	28,254	47,193	42,980	·91
Nantucket . .	3,726	2,352,123	11	560	304	425	–	28	265	415	373	·90
Norfolk . .	96,462	89,424,009	422	17,225	9,723	18,819	88	1,309	10,310	15,262	13,603	·88
Plymouth . .	74,024	41,597,896	338	12,892	7,412	13,731	130	988	7,416	11,730	10,315	·88
Suffolk . .	387,626	685,321,125	544	61,905	2,510	64,501	2	5,024	26,620	54,619	48,222	·88
Worcester . .	226,885	131,054,438	989	42,094	25,076	44,842	344	3,265	26,240	34,868	30,961	·89

COUNTIES.	No. of teachers re by the Public Sc	Whole No. of dif -male teachers in year.	Whole No. of dif female teache school-year.	No. of teacher have attended N Schools.	No. of teacher have graduate Normal School	Av'ge wages per of male teach Public Schools.	Av'ge wages per of female teac Public Schools	Aggregate of all the Public have been kept the school-year	Average No. of the Public have been kept entire year.	No. of Schools k than six month	No. of High Schools.	No. of teachers.	No. of pupils.	Salary of Principal.
Barnstable . .	170	52	156	34	31	$59 83	$30 12	1,337-5	8-3	4	10	13	501	$8,185 00
Berkshire . .	139	99	429	55	39	41 20	27 24	2,848-2	8-2	9	11	21	741	10,577 00
Bristol . . .	560	82	585	135	114	83 70	52 15	4,377-10	9-6	3	10	35	1,196	11,600 00
Dukes . . .	26	15	20	–	–	36 44	25 12	172-5	6-18	–	1	2	43	510 00
Essex . . .	906	87	930	254	219	110 73	41 82	7,945-9	9-16	2	26	75	2,270	32,830 50
Franklin . .	262	43	329	34	24	39 18	25 12	1,705-19	6-16	8	7	13	321	4,350 67
Hampden . .	425	61	491	119	83	72 66	36 68	3,274-4	8-16	1	9	33	1,082	12,900 00
Hampshire . .	288	57	345	50	44	42 55	6 85	2,137-17	7-14	5	11	21	665	8,792 07
Middlesex . .	1,301	164	1,339	397	322	107 32	46 57	8,799-7	9-1	6	38	119	3,874	48,342 99
Nantucket . .	13	2	15	1	1	90 00	23 50	95-15	8-16	2	1	2	61	900 00
Norfolk . . .	456	92	482	136	112	91 70	40 43	3,970-1	9-8	–	23	47	1,710	27,347 25
Plymouth . .	359	76	382	131	109	62 83	31 39	2,995-4	8-17	–	16	31	1,024	17,858 00
Suffolk . . .	1,198	141	1,060	572	572	249 21	71 34	2,815-5	10	–	12	96	2,353	39,580 00
Worcester . .	1,052	163	1,164	318	261	68 05	35 28	8,159-5	8-5	9	40	88	3,059	39,093 66
Totals . .	7,155	1,134	7,727	2,236	1,931	$85 54	$38 49	50,633-6	8-9	49	215	595	18,900	$262,867

RECAPITULATION — CONTINUED.

COUNTIES.	Amount paid for *all* school purposes from money raised by taxation.	Amount raised by taxes for Schools, including wages of teachers, board, fuel, care of fires and school-rooms, for the school-year 1880-81.	Expense of supervision by school-committee.	Salary of Superintendent of Public Schools.	Expenses of printing reports, etc.	Expense of sundries,—books, stationery, etc.	Amount expended for new school-houses.	Amount expended for alterations and permanent improvements.	Amount expended for ordinary repairs.	Amount of voluntary contributions for Public Schools.
Barnstable . .	$63,381 66	$54,998 55	$2,197 34	$925 00	$336 00	$1,413 38	$10,145 12	$2,327 40	$2,394 43	$64 00
Berkshire .	143,033 08	105,913 86	4,047 18	1,850 00	570 57	4,275 39	28,102 28	2,030 39	3,796 73	453 25
Bristol . .	313,782 60	266,555 13	8,746 88	5,650 00	802 99	14,853 46	36,469 77	15,171 46	10,167 03	27 00
Dukes . .	6,096 02	5,320 00	313 25	–	81 15	75 49	–	35 51	279 90	–
Essex . .	602,061 51	471,656 43	15,301 08	8,601 67	2,017 85	21,626 30	80,291 36	15,707 61	22,246 99	1,200 00
Franklin .	60,303 02	52,383 00	2,383 20	–	313 13	1,639 55	4,475 00	2,894 24	2,273 13	528 50
Hampden .	235,683 29	194,660 37	8,637 70	6,260 00	456 64	8,525 23	13,815 02	10,282 29	11,771 58	796 70
Hampshire .	87,209 65	70,853 12	3,364 13	1,000 00	356 36	1,957 74	6,090 98	3,941 45	3,634 81	1,177 12
Middlesex .	901,423 73	770,279 86	24,554 72	16,882 22	2,331 70	30,937 53	87,825 79	29,531 57	30,666 52	320 56
Nantucket .	4,437 61	4,314 55	100 00	–	30 00	426 42	600 00	–	45 00	–
Norfolk . .	288,378 53	244,827 68	13,517 51	8,215 00	648 45	10,835 06	5,901 15	13,443 17	7,843 53	298 00
Plymouth .	152,593 08	128,197 83	4,923 41	560 00	859 50	4,675 70	5,631 22	8,673 59	10,870 45	–
Suffolk . .	1,835,803 77	1,352,646 80	54,423 33	5,933 33	2,117 00	172,324 76	215,359 64	146,716 17	1,250 93	–
Worcester .	477,297 88	408,106 93	16,804 06	6,615 00	1,529 11	18,162 39	41,188 04	16,790 82	14,293 13	414 50

COUNTIES.	Amount of lo the income can be ap only for th of Schools emies.	Income of lo	Income of su enue and ot including th used at the the town.	Number of A emies.	Whole No. at ing for the y	Amount of tion paid.	No. of Pr Schools.	Whole No. at ing for the y	Estimated a of tuition.	Town's shar school-fund able Jan. 1881.	How much said fund used for ap tus and boo reference.
Barnstable . .	$31,000 00	$1,650 00	$1,632 41	2	23	$250 00	1	8	$180 00	$3,503 35	$124 18
Berkshire . .	19,316 99	1,310 64	1,225 64	2	21	1,200 00	16	493	20,259 00	7,067 06	426 04
Bristol . . .	129,700 00	8,915 02	3,466 60	8	192	12,960 00	84	1,294	15,239 00	3,443 54	249 88
Dukes . . .	-	-	35 32	1	60	200 00	-	-	-	1,056 01	3 68
Essex . . .	424,981 21	22,827 57	4,799 17	6	634	26,255 00	44	1,822	20,753 00	6,725 74	148 40
Franklin . .	73,094 50	4,921 89	1,265 33	4	272	1,101 25	8	255	4,612 00	5,596 97	177 82
Hampden . .	212,680 92	11,986 10	2,443 23	3	352	10,157 38	38	3,189	14,037 37	4,366 94	327 78
Hampshire . .	377,691 68	19,685 97	1,432 40	3	572	53,981 55	9	257	10,000 00	4,942 25	116 75
Middlesex . .	174,709 42	9,168 08	3,763 16	9	659	24,432 00	69	4,453	43,935 00	9,653 01	647 45
Nantucket . .	38,000 00	2,080 00	-	1	78	610 00	1	78	610 00	205 48	60 00
Norfolk . .	282,458 23	9,307 18	3,449 77	3	205	3,960 00	12	204	5,180 00	4,400 46	335 11
Plymouth . .	115,444 00	6,522 25	2,629 77	4	112	1,062 00	13	238	4,850 00	5,629 73	281 10
Suffolk . . .	46,935 01	2,359 03	152,971 91	19	4,474	281,862 00	75	3,538	240,500 00	349 18	-
Worcester . .	235,491 47	9,593 90	3,957 65	8	415	15,810 00	29	2,013	7,771 40	12,518 09	1,428 78
Totals . .	$2,161,503 46	$110,327 63	$183,072 36	68	8,069	$433,841 18	349	17,842	$387,926 77	$69,007 81	$4,326 97

EVENING SCHOOLS.

CITIES AND TOWNS.	No. of Schools.	ATTENDANCE.			TIME.	No. of Teachers.	Exp
		Males.	Females.	Average.	Number of Evenings.		
Andover . .	1	39	36	60	43	2	$1
Boston . .	24	3,013	*	1,588	101	131	39,4
Brookline . .	1	–	–	19	41	2	2
Cambridge . .	3	243	70	134	50	11	1,1
Clinton . {	1	53	8	35	33	1	2
	1	55	48	24	49	7	1
Dighton . .	1	6	10	12	25	2	
Fall River . .	16	811	292	457	83	32	2,9
Fitchburg . .	1	29	10	19	45	4	2
Haverhill . .	–	168	153	77	42	20	5
Holyoke . .	7	352	226	265	40	25	9
Hyde Park . .	2	38	17	34	119	3	5
Ipswich . .	1	–	–	23	54	1	1
Lawrence . .	3	470	218	251	50	25	1,7
Lowell . .	5	871	438	500	62	57	4,5
Malden . .	1	24	50	70	36	2	6
Milford . .	1	50	–	38	–	1	2
Millbury . .	1	32	12	20	50	1	
New Bedford .	2	115	100	85	66	7	1,1
Newburyport .	1	–	60	25	36	5	1
Newton . .	1	27	18	31	49	5	3
Peabody . .	1	44	–	27	40	3	2
Salem . . .	3	199	178	183	123†	12	2,4
Springfield . .	2	190	131	123	60	9	8
Stoneham . .	1	23	16	21	24	2	
Sutton . .	2	104	47	96	154	3	1
Taunton . .	2	192	60	85	42	9	9
Waltham . .	3	144	102	31	39	6	5
Westfield . .	1	122	15	42	36	6	2
Worcester . .	8	438	127	390	67	14	2,4
Totals 29 cities and towns . .	97	7,852	2,442	4,765	1,659	408	$63,5

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* Included with the males.

† 41 of these were in Drawing School.

STATE INSTITUTIONS.	No. of Schools Institution.	No. of different ars of all age ing the year.	Average atten during the yea	No. under 5 ye age attend'g S	No. over 15 ye age attend'g S	No. between 5 years of age r ing in the Inst July 31, 1881.					Length of each in Months.
							Males.	Females.	Males.	Females.	
State Industrial School at Lancaster .	2	99	61	–	41	50	–	2	–	$25 00*	Three h'rs per day.
State Primary School at Monson . .	9	581	364	23	6	336	–	9	–	20 83†	10ms. 15d.
State Reform School at Westborough .	4	265	178	–	19	154	9	3	$58 33 40 00	23 00	12ms.

* With board.

† With exception of the principal, who has $41.67 per month.

GRADUATED TABLES — First Series.

The following Table shows the sums appropriated by the sever
and towns in the State, for the education of each child between
fifteen years of age. The income of the surplus revenue and
funds held in a similar way, when appropriated to schools, is adde
sum raised by taxes; and these sums constitute the amount reck
appropriations. The income of such school-funds as were given
held on the express condition that their income shall be appropr
schools, is not included. Such an appropriation of their income, b
cessary to retaining the funds, is no evidence of the liberality of the
ing the trust. But if a town appropriates the income of any fu
public schools, which may be so appropriated or not, at the optio
voters, or when the town has a legal right to use such income in d
its ordinary expenses, then such an appropriation is as really a cont
to common schools as an equal sum raised by taxes. On this acc
surplus revenue, and sometimes other funds, are to be distinguish
local school-funds as generally held. The income of the one *may* b
priated to schools, or not, at the pleasure of the town; the incom
other *must* be appropriated to schools by the condition of the d
Funds of the latter kind are usually donations made to furnish n
education in addition to those provided by a reasonable taxation
mittees are expected, in their annual returns, to make this distin
relation to school-funds.

Voluntary contributions are not included in the amount which is
in order to ascertain the sum appropriated to each child. In ma
such contributions, however liberal, are not permanent, and cannot
upon as a stated provision. They are often raised and applied
particular districts or schools, or classes of scholars, and not to
equally all that attend the public schools. Besides, the value of bo
fuel gratuitously furnished is determined by the mere estimate of
uals, and is therefore uncertain; while the amount raised by taxe
in money, has a fixed and definite value, and is a matter of recor
the contributions voluntarily made are exhibited in a separate colum
Table, as necessary to a complete statement of the provision mad
towns for the education of their children.

The Table exhibits the rank of each city or town in the State, i
to its liberality in the appropriation of money to its schools, as c
with other cities and towns for the year 1880–81, also its rank in a
scale for 1879-80. It presents the sum appropriated to each child
five and fifteen.

Table showing the Comparative Amount of Money appropriated by the different Towns in the State for the Education of each Child in the Town, between the Ages of 5 and 15 Years.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
1	1	NAHANT	$42 16 1	$4,679 85	-	$4,679 85	111	-
2	2	Brookline	27 62 8	36,000 00	-	36,000 00	1,303	-
5	3	Boston	25 18·2	1,300,090 41	$152,971 91	1,453,062 32	57,703	-
3	4	Milton	24 30·5	13,391 95	-	13,391 95	551	-
4	5	Newton	21 98·7	69,249 59	712 50	69,962 09	3,182	-
8	6	Winchester . . .	21 31·4	12,000 00	-	12,000 00	563	-
6	7	Arlington	20 88·5	17,000 00	-	17,000 00	814	-
7	8	Lexington	20 00	8,400 00	-	8,400 00	420	-
13	9	Dedham	19 84·7	21,435 00	-	21,435 00	1,080	-
9	10	Medford	19 40·8	23,367 00	-	23,367 00	1,204	-
15	11	Swampscott . . .	19 00 6	6,500 00	-	6,500 00	342	-
14	12	Weston	18 98·4	3,550 00	-	3,550 00	187	-
20	13	Belmont	18 45·2	4,650 00	-	4,650 00	252	-
23	14	New Bedford . . .	17 71·1	71,640 00	673 66	72,313 66	4,083	-
11	15	Watertown . . .	17 56·7	15,020 00	-	15,020 00	855	-
28	16	Needham	17 38·4	15,000 00	384 75	15,384 75	885	$150 00
10	17	Lancaster	16 60·7	4,633 36	-	4,633 36	279	-
12	18	Waltham	16 11·9	34,363 28	228 28	34,591 56	2,146	-

Showing the Comparative Amount of Money appropriated by the different Towns in the State—Continued.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
21	19	Reading	$16 06·4	$8,000 00	–	$8,000 00	498	–
33	20	Kingston	15 47 8	3,250 00	$108 70	3,358 70	217	–
27	21	Malden	15 37	32,000 00	–	32,000 00	2,082	–
173	22	Hull	15 09 4	800 00	–	800 00	53	–
30	23	Framingham	15 05 7	14,800 00	317 49	15,117 49	1,004	–
17	24	Cambridge	14 98·2	140,686 60	–	140,686 60	9,390	–
72	25	Carlisle	14 58	700 00	72 75	772 75	53	–
36	26	Salem	14 53·2	69,400 84	1,252 15	70,652 99	4,862	–
31	27	Groton	14 50·6	4,700 00	–	4,700 00	324	–
40	28	Walpole	14 36·2	5,300 00	–	5,300 00	369	$110 00
34	29	Hingham	14 33·4	9,976 41	–	9,976 41	696	–
44	30	Barnstable	14 01·8	9,000 00	335 96	9,335 96	666	–
26	31	Springfield	13 98·1	82,000 00	–	82,000 00	5,865	–
56	32	Cohasset	13 87·8	5,500 00	217 64	5,717 64	412	–
45	33	Barre	13 85·1	4,600 00	178 61	4,778 61	345	–
38	34	North Andover	13 60·5	8,000 00	–	8,000 00	588	–
50	35	Hyde Park	13 56·2	19,000 00	–	19,000 00	1,401	–
122	36	Woburn	13 45 9	30,000 00	–	30,000 00	2,229	–
87	37	Lincoln	13 42·3	2,000 00	–	2,000 00	149	–
75	38	Holbrook	13 41 8	4,700 00	144 00	4,844 00	361	–
57	39	Uxbridge	13 41·3	6,000 00	196 95	6,196 95	462	–
19	40	Quincy	13 39·8	26,100 00	–	26,100 00	1,948	–

[illegible]	48	Plymouth	13 06 4	16,384 00	234 00	16,618 00	1,272	–
32	49	Fitchburg	13 06·3	30,500 00	119 72	30,619 72	2,344	–
96	50	Methuen	13 04·3	8,700 00	–	8,700 00	667	–
42	51	Everett	12 95·8	9,899 88	–	9,899 88	764	104 00
24	52	Concord	12 92·7	8,221 50	–	8,221 50	636	–
95	53	Longmeadow . . .	12 91·7	2,950 00	163 09	3,113 09	241	–
16	54	Haverhill	12 85·7	45,000 00	–	45,000 00	3,500	–
22	55	Northborough . . .	12 85·1	3,200 00	–	3,200 00	249	–
51	56	Chelsea	12 62·5	46,056 39	–	46,056 39	3,648	–
73	57	Peabody	12 58·7	20,719 19	854 34	21,573 53	1,714	–
70	58	Wakefield	12 58·2	11,500 00	–	11,500 00	914	–
81	59	Randolph	12 56·9	9,000 00	–	9,000 00	716	–
85	60	Sudbury	12 49 9	2,000 00	287 45	2,287 45	183	–
89	61	Revere	12 46·8	5,000 00	–	5,000 00	401	–
100	62	Bridgewater . . .	12 39·8	7,800 00	295 73	8,095 73	653	–
78	63	Weymouth	12 39·7	24,394 49	746 80	25,141 29	2,028	–
25	64	Melrose	12 38·7	11,000 00	–	11,000 00	888	50 00
61	65	Sterling	12 33·4	2,800 00	–	2,800 00	227	–
60	66	Littleton	12 32 3	2,021 00	–	2,021 00	164	–
105	67	Georgetown . . .	12 30·5	4,800 00	208 27	5,008 27	407	–
65	68	Granby	12 29·9	1,600 00	35 75	1,635 75	133	–
63	69	Greenfield	12 25·4	8,700 00	–	8,700 00	710	–
86	70	Wellfleet	12 17·4	4,200 00	–	4,200 00	345	–
77	71	Bedford	12 16·2	1,800 00	–	1,800 00	148	–
59	72	Wrentham	12 14·3	4,500 00	272 20	4,772 20	393	–
138	73	Danvers	12 09·5	12,300 00	291 07	12,591 07	1,041	–
29	74	Falmouth	12 07·3	4,444 25	215 82	4,660 07	386	–
111	75	Sherborn	12 07·1	1,800 00	70 96	1,870 96	155	–
55	76	Upton	12 04·8	4,000 00	–	4,000 00	332	–

Showing the Comparative Amount of Money appropriated by the different Towns in the State—Continued.

For 1879–80.	For 1880–81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
48	77	Abington	$12 02·5	$7,600 00	–	$7,600 00	632	–
90	78	Orleans	11 97·5	2,400 00	$30 84	2,430 84	203	–
62	79	Stockbridge . . .	11 96 8	4,500 00	–	4,500 00	376	–
110	80	Medfield	11 94	2,400 00	–	2,400 00	201	–
71	81	Shelburne	11 84·1	3,000 00	137 78	3,137 78	265	–
93	82	Dover.	11 68·6	1,100 00	68 60	1,168 60	100	–
41	83	New Braintree . . .	11 60·1	1,345 75	–	1,345 75	116	–
67	84	Sandwich	11 58·8	7,400 00	282 98	7,682 98	663	–
64	85	Dracut	11 57·7	3,000 00	102 60	3,102 60	268	–
84	86	Canton	11 50·4	10,400 00	402 14	10,802 14	939	–
166	87	Orange	11 43	5,200 00	–	5,200 00	455	–
106	88	Ipswich	11 42·3	6,100 00	194 04	6,294 04	551	–
54	89	Worcester	11 40 4	125,305 90	–	125,305 90	10,988	–
107	90	Saugus	11 36·4	5,500 00	–	5,500 00	484	–
153	91	Shirley	11 36·4	2,000 00	216 00	2,216 00	195	–
88	92	Petersham	11 35·6	1,851 00	79 47	1,930 47	170	–
68	93	South Hadley . . .	11 33·8	7,881 89	157 07	8,038 96	709	–
76	94	Taunton	11 28 8	39,102 60	–	39,102 60	3,464	–
69	95	Bradford	11 26·8	4,800 00	–	4,800 00	426	–
154	96	Wayland	11 24·9	4,000 00	139 51	4,139 51	368	–
108	97	Easton	11 24·6	8,767 05	308 75	9,075 80	807	–
82	98	Shrewsbury . . .	11 23·6	3,000 00	–	3,000 00	267	–
176	99	Wilmington . . .	11 23·1	1,550 00	112 20	1,662 20	148	–

		Ashby	10 87·5	1,750 00	54 27	1,804 27	166	
58	107	Lynn	10 85 6	67,623 58	–	67,623 58	6,229	–
80	108	Manchester	10 81·1	2,800 00	–	2,800 00	259	–
124	109	Andover	10 74 7	9,500 00	–	9,500 00	884	–
101	110	Tyngsborough	10 64·8	1,150 00	–	1,150 00	108	–
66	111	Stoughton	10 63·1	10,206 18	–	10,206 18	960	–
149	112	Marshfield	10 61·9	2,500 00	123 08	2,623 08	247	–
114	113	Leominster	10 61·3	9,350 00	–	9,350 00	881	–
104	114	Attleborough	10 59·7	19,000 00	773 43	19,773 43	1,866	–
92	115	Foxborough	10 52·7	5,200 00	284 50	5,484 50	521	$38 00
49	116	East Bridgewater	10 48·2	5,000 00	–	5,000 00	477	–
186	117	Burlington	10 46·8	1,200 00	98 04	1,298 04	124	–
102	118	Rehoboth	10 45·5	3,000 00	262 01	3,262 01	312	–
119	119	Brewster	10 42 6	2,200 00	–	2,200 00	211	–
47	120	Clinton	10 39	17,361 72	–	17,361 72	1,671	–
144	121	Middleborough	10 35·7	9,000 00	–	9,000 00	869	–
172	122	Amherst	10 33 2	6,996 17	184 67	7,180 81	695	–
129	123	Brookfield	10 24	4,800 00	166 80	4,966 80	485	37 00
163	124	Leicester	10 21·7	5,400 00	260 13	5,660 13	554	–
162	125	West Springfield	10 21·6	7,241 78	226 23	7,468 01	731	–
185	126	Townsend	10 21	3,400 00	–	3,400 00	333	–
–	127	Cottage City	10 20·4	1,000 00	–	1,000 00	98	–
79	128	Brockton	10 15 6	22,700 00	324 44	23,024 44	2,267	–
181	129	Harvard	10 15 2	2,000 00	–	2,000 00	197	–
226	130	Wendell	10 11 2	600 00	26 95	626 95	62	12 00
205	131	Charlemont	10 10 2	1,100 00	51 70	1,151 70	114	–
94	132	Tewksbury	10 05	2,000 00	–	2,000 00	199	–
128	133	Tisbury	10 05	2,000 00	–	2,000 00	199	–
178	134	Charlton	10 03 3	3,000 00	–	3,000 00	299	–

Showing the Comparative Amount of Money appropriated by the different Towns in the State—Continued.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
135	135	Norfolk	$10 03·2	$1,200 00	$84 07	$1,284 07	128	-
217	136	Hudson	10 01·4	7,200 00	130 53	7,330 53	732	-
157	137	Milford	9 98·7	18,702 00	214 04	18,916 04	1,894	-
112	138	Pittsfield	9 95 6	25,100 00	-	25,100 00	2,521	-
161	139	Amesbury	9 95·1	5,299 93	123 63	5,423 56	545	-
115	140	Douglas	9 95·1	4,100 00	-	4,100 00	412	-
113	141	Chelmsford	9 94·9	4,500 00	236 07	4,736 07	476	-
117	142	Sharon	9 92·6	2,000 00	144 00	2,144 00	216	-
98	143	Athol	9 91·7	6,500 00	214 04	6,714 04	677	-
130	144	Edgartown	9 88·4	1,700 00	-	1,700 00	172	-
168	145	Salisbury	9 81·8	6,500 00	146 77	6,646 77	677	-
145	146	Franklin	9 81·3	6,300 00	-	6,300 00	642	-
91	147	Mattapoisett	9 80·9	1,950 00	60 75	2,010 75	205	-
121	148	Winthrop	9 80·4	1,500 00	-	1,500 00	153	-
189	149	Gloucester	9 74·8	38,587 00	484 33	39,071 33	4,008	$12 00
155	150	Berkley	9 66·7	1,450 00	-	1,450 00	150	-
136	151	Bellingham	9 66	1,800 00	277 07	2,077 07	215	-
184	152	Princeton	9 64	1,600 00	-	1,600 00	166	-
151	153	Swanzey	9 63·8	2,120 41	-	2,120 41	220	-
204	154	Monson	9 62·4	5,428 47	240 19	5,668 66	589	-
127	155	Natick	9 61	16,000 00	-	16,000 00	1,665	-
139	156	Lawrence	9 59·6	65,882 26	-	65,882 26	6,865	-
182	157	Lee	9 57·8	7,260 00	-	7,260 00	758	-

160	164	Wareham	9 46	4,900 00	303 00	5,203 00	550	–
178	165	Chicopee	9 45·8	20,675 00	–	20,675 00	2,186	–
125	166	Newburyport	9 45·3	23,500 00	–	23,500 00	2,486	–
133	167	Ashland	9 44·6	4,033 00	198 93	4,231 93	448	–
167	168	Dartmouth	9 43·3	4,500 00	272 97	4,772 97	506	–
212	169	Medway	9 38·3	7,000 00	–	7,000 00	746	–
142	170	Northampton	9 38·2	19,600 00	–	19,600 00	2,089	–
169	171	Ashfield	9 34·1	1,600 00	44 00	1,644 00	176	169 50
109	172	Westminster	9 32 2	2,750 00	–	2,750 00	295	174 00
316	173	Sturbridge	9 30·8	3,500 00	–	3,500 00	376	–
208	174	Northfield	9 28·3	2,000 00	404 49	2,404 49	259	–
126	175	Fairhaven	9 28·2	4,000 00	158 52	4,158 52	448	–
232	176	Alford	9 27·6	578 00	15 67	593 67	64	–
146	177	Gardner	9 24·4	7,500 00	255 89	7,755 89	839	–
187	178	Dennis	9 23·4	5,000 00	272 88	5,272 88	571	50 00
209	179	South Scituate	9 18·6	2,800 00	102 85	2,902 85	316	–
298	180	Greenwich	9 17·4	1,025 06	39 15	1,064 21	116	–
180	181	Fall River	9 17	89,526 89	–	89,526 89	9,763	–
194	182	Raynham	9 11	2,800 00	169 92	2,969 92	326	–
165	183	Hopkinton	9 10·2	8,000 00	373 94	8,373 94	920	32 56
195	184	Dalton	9 09·1	3,500 00	–	3,500 00	385	–
183	185	Freetown	9 04·5	1,800 00	–	1,800 00	199	–
179	186	Mansfield	9 03·6	4,500 00	–	4,500 00	498	–
174	187	Acton	9 01·9	2,500 00	178 67	2,678 67	297	–
171	188	Stow	9 01·3	1,700 00	84 56	1,784 56	198	–
228	189	Seekonk	9 01·1	1,700 00	174 24	1,874 24	208	–
193	190	Hubbardston	9 00 9	2,000 00	–	2,000 00	222	–
215	191	North Brookfield . . .	9 00	7,000 00	191 26	7,191 26	799	–
156	192	Lunenburg	8 98	1,200 00	93 24	1,293 24	144	–

Showing the Comparative Amount of Money appropriated by the different Towns in the State—Continued.

For 1879–80.	For 1880–81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
170	193	Dunstable	$8 95·5	$600 00	–	$600 00	67	–
148	194	Ayer	8 90·6	3,500 00	–	3,500 00	393	–
248	195	West Brookfield . . .	8 90·2	3,000 00	–	3,000 00	337	–
188	196	Billerica	8 88·9	2,800 00	–	2,800 00	315	–
243	197	Topsfield	8 86·2	1,400 00	$124 20	1,524 20	172	–
199	198	West Newbury . . .	8 77·7	2,899 11	94 06	2,993 17	341	–
198	199	Grafton	8 76·5	7,100 00	–	7,100 00	810	–
131	200	Northbridge . . .	8 70·6	7,400 00	–	7,400 00	850	–
230	201	Dighton	8 69·9	2,525 00	128 27	2,653 27	305	–
150	202	Great Barrington . .	8 68 3	7,500 00	132 14	7,632 14	879	–
123	203	Agawam	8 67	3,000 00	–	3,000 00	346	–
241	204	Conway	8 65·1	2,300 00	79 00	2,379 00	275	$80 00
219	205	Hanover	8 63·3	2,750 00	99 00	2,849 00	330	–
311	206	Peru	8 63	600 00	30 00	630 00	73	–
224	207	Paxton	8 62·1	1,000 00	–	1,000 00	116	–
283	208	Maynard	8 58·4	3,500 00	148 41	3,648 41	425	–
143	209	Templeton	8 56	4,500 00	139 34	4,639 34	542	–
216	210	New Salem	8 54 2	1,100 00	27 55	1,127 55	132	–
255	211	Halifax	8 53 7	700 00	–	700 00	82	–
83	212	Mashpee	8 53·5	500 00	46 25	546 25	64	14 00
333	213	Hancock	8 51·1	800 00	–	800 00	94	–
229	214	Rockland	8 49 4	7,500 00	–	7,500 00	883	–
222	215	Palmer	8 41	9,000 00	218 00	9,218 00	1,096	–

137	222	Provincetown . . .	8 15·7	6,754 30	–	6,754 30	820	–
265	223	Enfield	8 13 9	1,400 00	–	1,400 00	172	–
281	224	Bolton	8 10·8	1,200 00	–	1,200 00	148	–
152	225	Royalston	8 09·8	1,500 00	70 99	1,570 99	194	187 50
320	226	Rowley	8 09·2	1,400 00	–	1,400 00	173	–
197	227	Oxford	8 08·1	4,000 00	–	4,000 00	495	–
220	228	Hawley	8 06·5	1,000 00	–	1,000 00	124	–
175	229	Southbridge . . .	8 06 4	10,314 00	–	10,314 00	1,279	–
231	230	Warwick	7 98·3	950 00	–	950 00	119	–
177	231	Truro	7 95·1	1,400 00	31 25	1,431 25	180	–
221	232	Lenox	7 93·3	3,300 00	–	3,300 00	416	–
259	233	Westport	7 93·3	4,000 00	244 00	4,244 00	535	–
276	234	Erving	7 90·6	1,200 00	25 50	1,225 50	155	–
227	235	Easthampton . . .	7 88·5	6,600 00	110 50	6,710 50	851	–
278	236	Rochester	7 87·2	1,515 65	113 99	1,629 64	207	–
223	237	Holyoke	7 83·6	33,000 00	436 05	33,436 05	4,267	–
210	238	Deerfield	7 83·3	4,500 00	121 50	4,621 50	590	–
201	239	South Abington . . .	7 82·6	4,000 00	171 40	4,171 40	533	–
141	240	Boxford	7 81·1	1,000 00	54 48	1,054 48	135	–
240	241	Belchertown . . .	7 72·8	3,500 00	131 93	3,631 93	470	–
269	242	Nantucket	7 70·5	4,314 55	–	4,314 55	560	–
251	243	Middleton	7 62 9	1,150 00	63 04	1,213 04	159	–
247	244	Scituate	7 59 3	3,850 00	136 41	3,986 41	525	–
207	245	Hamilton	7 53·9	800 00	66 99	866 99	115	–
203	246	Marion	7 53 9	1,200 00	66 61	1,266 61	168	–
285	247	North Adams . . .	7 50 8	16,092 98	184 99	16,277 97	2,168	–
256	248	Wilbraham . . .	7 45·3	1,839 82	112 86	1,952 68	262	–
301	249	Carver	7 44·8	1,200 00	95 91	1,295 91	174	–
244	250	Monterey	7 42·1	800 00	90 55	890 55	120	–

Showing the Comparative Amount of Money appropriated by the different Towns in the State — Continued.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
246	251	Plympton	$7 41·7	$800 00	$85 26	$885 26	118	–
234	252	Duxbury	7 37·5	2,500 00	228 59	2,728 59	370	–
258	253	Norton	7 36·3	2,000 00	201 72	2,201 72	299	$27 00
252	254	Marlborough . . .	7 35·5	15,600 00	–	15,600 00	2,121	–
282	255	Chatham	7 35	3,000 00	65 00	3,065 00	417	–
237	256	Adams	7 34·2	8,538 50	–	8,538 50	1,163	–
264	257	Phillipston	7 33·6	800 00	73 11	873 11	119	–
304	258	Hadley	7 27·5	2,750 00	–	2,750 00	378	–
238	259	Dudley	7 21·6	4,200 00	151 52	4,351 52	603	–
297	260	Mendon	7 18·3	1,300 00	107 94	1,407 94	196	–
242	261	Leverett	7 16·8	800 00	53 00	853 00	119	–
262	262	Rowe	7 14·7	650 00	36 15	686 15	96	–
263	263	Huntington . . .	7 12·9	1,300 00	61 69	1,361 69	191	–
254	264	Winchendon . . .	7 07·4	4,824 63	–	4,824 63	682	–
309	265	Blandford	7 03·6	1,440 62	64 98	1,505 60	214	636 70
233	266	Ware	7 03·5	7,000 00	–	7,000 00	995	–
196	267	Montague	6 98·7	8,000 00	–	8,000 00	1,145	–
211	268	Rutland	6 98·7	1,600 00	–	1,600 00	229	–
268	269	Webster	6 95·5	6,300 00	259 60	6,559 60	939	–
235	270	Warren	6 96·9	6,000 00	–	6,000 00	861	–
257	271	Worthington . . .	6 96·7	700 00	198 80	898 80	129	495 00
200	272	Cheshire	6 96·4	2,500 00	–	2,500 00	359	–
249	273	Groveland	6 94·4	3,000 00	–	3,000 00	432	–
315	274	West Stockbridge . .	6 93·8	3,000 00	59 93	3,059 93	441	–

288	281	Dana	6 76·1	700 00	30 20	730 20	[illegible]	–
293	282	Williamstown . . .	6 72 6	4,500 00	–	4,500 00	669	–
287	283	Hampden	6 70·7	1,100 00	80 38	1,180 38	176	–
312	284	Granville	6 66·6	1,600 00	66 43	1,666 43	250	63 00
290	285	Southampton . . .	6 59·4	1,250 00	68 80	1,318 80	200	–
253	286	Brimfield	6 57·7	1,400 00	–	1,400 00	213	–
213	287	Montgomery . . .	6 53 8	425 00	–	425 00	65	–
272	288	Somerset	6 48·6	2,523 18	–	2,523 18	389	–
266	289	Lakeville	6 46·2	1,421 77	–	1,421 77	220	–
250	290	Pepperell	6 45·2	2,400 00	–	2,400 00	372	–
314	291	Williamsburg . . .	6 42·9	2,500 00	97 45	2,597 45	404	35 00
271	292	Eastham	6 42·8	900 00	–	900 00	140	–
270	293	Ludlow	6 41·7	2,000 00	117 48	2,117 48	330	–
310	294	Whately	6 39·8	1,350 00	–	1,350 00	211	–
299	295	Harwich	6 36·5	4,000 00	111 67	4,111 67	646	–
306	296	Westhampton . . .	6 27·1	800 00	21 49	821 49	131	–
308	297	Rockport	6 26	4,958 00	–	4,958 00	792	–
300	298	Becket	6 25·3	1,303 50	63 30	1,366 80	217	–
280	299	Oakham	6 24·2	750 00	92 72	842 72	135	16 00
305	300	Newbury	6 23·7	1,700 00	40 00	1,740 00	279	–
225	301	Chilmark	6 23·1	450 00	17 32	467 32	75	–
294	302	Holden	6 20·8	2,818 57	194 44	3,013 01	485	–
284	303	Gill	6 20·1	800 00	–	800 00	129	132 00
274	304	Shutesbury . . .	6 13·5	600 00	25 81	625 81	102	–
259	305	Sheffield	6 06·6	2,500 00	272 33	2,772 33	457	–
292	306	Middlefield	6 01·1	800 00	131 70	931 70	155	–
313	307	Sandisfield	5 98 1	1,200 00	32 27	1,232 27	206	149 00
260	308	Prescott	5 97·2	500 00	25 56	525 56	88	–

Showing the Comparative Amount of Money appropriated by the different Towns in the State — Concluded.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
317	309	Hinsdale	$5 88·2	$2,500 00	–	$2,500 00	425	–
261	310	Tolland	5 74·7	500 00	–	500 00	87	$97 00
322	311	Sutton	5 74	4,150 00	–	4,150 00	723	–
319	312	Pelham	5 72·9	650 00	$48 94	698 94	122	–
296	313	Berlin	5 69·1	1,000 00	86 59	1,086 59	191	–
273	314	Pembroke	5 59·7	1,500 00	–	1,500 00	268	–
291	315	Lynnfield	5 55·6	600 00	–	600 00	108	–
330	316	Auburn	5 51·9	1,150 00	113 91	1,263 91	229	–
323	317	Otis	5 46·8	1,000 00	49 95	1,049 95	192	–
332	318	Chester	5 40·9	1,400 00	87 60	1,487 60	275	–
286	319	Washington . . .	5 38·1	650 00	38 72	688 72	128	–
307	320	West Boylston . . .	5 37 5	3,300 00	–	3,300 00	614	–
318	321	Hardwick	5 30·4	2,300 00	108 08	2,408 08	454	–
321	322	New Marlborough . .	5 22·1	2,000 00	62 38	2,062 38	395	–
302	323	Leyden	5 21 7	600 00	–	600 00	115	–
327	324	Tyringham . . .	5 19 2	600 00	23 00	623 00	120	54 00
335	325	Hatfield	5 14·7	1,500 00	69 89	1,569 89	305	–
331	326	Cummington . . .	5 02·7	900 00	30 00	930 00	185	400 00
295	327	Mount Washington . .	4 83 9	150 00	–	150 00	31	–
344	328	Bernardston . . .	4 82.8	683 00	79 80	762 80	158	50 00
328	329	Buckland	4 79	1,600 00	86 10	1,686 10	352	–
325	330	Southwick	4 72 9	900 00	78 99	978 99	207	–

					–	300 00	74	110 00
336	339	Richmond	3 93·4	1,000 00	54 36	1,054 36	268	–
190	340	Russell	3 85 7	500 00	39 95	539 95	140	–
341	341	Monroe	3 84·6	200 00	–	200 00	52	–
329	342	Savoy	3 48·9	500 00	33 81	533 81	153	185 00
340	343	New Ashford	3 46·1	102 00	15 67	117 67	34	–
343	344	Holland	3 42·6	200 00	15 88	215 88	63	–
342	345	Gay Head	2 57·1	90 00	–	90 00	35	–

GRADUATED TABLES — (COUNTY TABLES) — FIRST SERIES.

Table showing the Comparative Amount of Money appropriated by the different Towns in each of the Counties in the State for the Education of each Child in the Town, between the Ages of 5 and 15 Years.

BARNSTABLE COUNTY.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
2	1	BARNSTABLE	$14 01·8	$9,000 00	$335 96	$9,335 96	666	–
6	2	Wellfleet	12 17·4	4,200 00	–	4,200 00	345	–
1	3	Falmouth	12 07·3	4,444 25	215 82	4,660 07	386	–
7	4	Orleans	11 97·5	2,400 00	30 84	2,430 84	203	–
4	5	Sandwich	11 58·8	7,400 00	282 98	7,682 98	663	–
3	6	Yarmouth	11 09·8	3,800 00	139 76	3,939 76	355	–
8	7	Brewster	10 42·6	2,200 00	–	2,200 00	211	–
11	8	Dennis	9 23·4	5,000 00	272 88	5,272 88	571	$50 00
5	9	Mashpee	8 53·5	500 00	46 25	546 25	64	14 00
9	10	Provincetown	8 15·7	6,754 30	–	6,754 30	828	–
10	11	Truro	7 95·1	1,400 00	31 25	1,431 25	180	–
13	12	Chatham	7 35	3,000 00	65 00	3,065 00	417	–
12	13	Eastham	6 42·8	900 00	–	900 00	140	–
14	14	Harwich	6 36·5	4,000 00	111 67	4,111 67	646	–

18	7	Peru	8 63	600 00	30 00	630 00	73	–
28	8	Hancock	8 51·1	800 00	–	800 00	94	–
7	9	Lenox	7 93·3	3,300 00	–	3,300 00	416	–
12	10	North Adams . . .	7 50·8	16,092 98	184 99	16,277 97	2,168	–
10	11	Monterey	7 42·1	800 00	90 55	890 55	120	–
9	12	Adams	7 34 2	8,538 50	–	8,538 50	1,163	–
6	13	Cheshire	6 96·4	2,500 00	–	2,500 00	359	–
20	14	West Stockbridge . .	6 93·8	3,000 00	59 93	3,059 93	441	–
15	15	Williamstown . . .	6 72·6	4,500 00	–	4,500 00	669	–
17	16	Becket	6 25·3	1,303 50	63 30	1,366 80	217	–
14	17	Sheffield	6 06·6	2,500 00	272 33	2,772 33	457	–
19	18	Sandisfield	5 98·1	1,200 00	32 27	1,232 27	206	$149 00
21	19	Hinsdale	5 88·2	2,500 00	–	2,500 00	425	–
23	20	Otis	5 46·8	1,000 00	49 95	1,049 95	192	–
13	21	Washington . . .	5 38·1	650 00	38 72	688 72	128	–
22	22	New Marlborough . .	5 22·1	2,000 00	62 38	2,062 38	395	–
26	23	Tyringham . . .	5 19·2	600 00	23 00	623 00	120	54 00
16	24	Mount Washington . .	4 83·9	150 00	–	150 00	31	–
25	25	Florida	4 64·5	538 88	–	538 88	116	15 25
30	26	Clarksburg	4 43	700 00	–	700 00	158	–
24	27	Lanesborough . . .	4 36·4	1,200 00	–	1,200 00	275	50 00
31	28	Windsor	4 25·7	400 00	30 00	430 00	101	–
11	29	Egremont	4 16·3	1,000 00	36 57	1,036 57	249	–
29	30	Richmond	3 93·4	1,000 00	54 36	1,054 36	268	–
27	31	Savoy	3 48 9	500 00	33 81	533 81	153	185 00
32	32	New Ashford . . .	3 46·1	102 00	15 67	117 67	34	–

BRISTOL COUNTY.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age	Amount contributed for board and fuel.
1	1	NEW BEDFORD	$17 71·1	$71,640 00	$673 66	$72,313 66	4,083	–
2	2	Taunton	11 28·8	39,102 60	–	39,102 60	3,464	–
5	3	Easton	11 24·6	8,767 05	308 75	9,075 80	807	–
4	4	Attleborough . . .	10 59·7	19,000 00	773 43	19,773 43	1,866	–
3	5	Rehoboth	10 45·5	3,000 00	262 01	3,262 01	312	–
8	6	Berkley	9 66·7	1,450 00	–	1,450 00	150	–
7	7	Swanzey	9 63·8	2,120 41	–	2,120 41	220	–
9	8	Dartmouth	9 43·3	4,500 00	272 97	4,772 97	506	–
6	9	Fairhaven	9 28·2	4,000 00	158 52	4,158 52	448	–
11	10	Fall River	9 17	89,526 89	–	89,526 89	9,763	–
13	11	Raynham	9 11	2,800 00	169 92	2,969 92	326	–
12	12	Freetown	9 04·5	1,800 00	–	1,800 00	199	–
10	13	Mansfield	9 03·6	4,500 00	–	4,500 00	498	–
15	14	Seekonk	9 01·1	1,700 00	174 24	1,874 24	208	–
16	15	Dighton	8 69·9	2,525 00	128 27	2,653 27	305	–
14	16	Acushnet	8 24·9	1,600 00	99 21	1,699 21	206	–
18	17	Westport	7 93·3	4,000 00	244 00	4,244 00	535	–
17	18	Norton	7 36·3	2,000 00	201 72	2,201 72	299	$27 00
19	19	Somerset	6 48 6	2,523 18	–	2,523 18	889	–

DUKES COUNTY.

ESSEX COUNTY.

1	1	NAHANT	$42 16·1	$4,679 85	–	$4,679 85	111	–
2	2	Swampscott . . .	19 00·6	6,500 00	–	6,500 00	342	–
4	3	Salem.	14 53·2	69,400 84	$1,252 15	70,652 99	4,862	–
5	4	North Andover . . .	13 60·5	8,000 00	–	8,000 00	588	–
10	5	Methuen	13 04·3	8,700 00	–	8,700 00	667	–
3	6	Haverhill	12 85·7	45,000 00	–	45,000 00	3,500	–
8	7	Peabody	12 58 7	20,719 19	854 34	21,573 53	1,714	–
13	8	Georgetown . . .	12 30·5	4,800 00	208 27	5,008 27	407	–
18	9	Danvers	12 09·5	12,300 00	291 07	12,591 07	1,041	–
14	10	Ipswich	11 42·3	6,100 00	194 04	6,294 04	551	–
15	11	Saugus	11 36·4	5,500 00	–	5,500 00	484	–
7	12	Bradford	11 26·8	4,800 00	–	4,800 00	426	–
12	13	Merrimac	11 17·5	4,200 00	91 11	4,291 11	384	–
11	14	Beverly	10 95·2	15,469 08	313 23	15,782 31	1,441	–
6	15	Lynn	10 85·6	67,623 58	–	67,623 58	6,229	–
9	16	Manchester . . .	10 81·1	2,800 00	–	2,800 00	259	–
16	17	Andover	10 74·7	9,500 00	–	9,500 00	884	–
22	18	Amesbury	9 95·1	5,299 93	123 63	5,423 56	545	–
23	19	Salisbury	9 81·8	6,500 00	146 77	6,646 77	677	–
24	20	Gloucester	9 74·8	38,587 00	484 33	39,071 33	4,008	$12 00
19	21	Lawrence	9 59·6	65,882 26	–	65,882 26	6,865	–
21	22	Marblehead . . .	9 53 7	13,087 59	330 97	13,418 56	1,407	–
26	23	Wenham	9 46·1	1,400 00	66 49	1,466 49	155	–
17	24	Newburyport . . .	9 45·3	23,500 00	–	23,500 00	2,486	–

ESSEX COUNTY — CONCLUDED.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
29	25	Topsfield	$8 86·2	$1,400 00	$124 20	$1,524 20	172	–
25	26	West Newbury	8 77·7	2,899 11	94 06	2,993 17	341	–
28	27	Essex	8 30·5	2,400 00	–	2,400 00	289	–
35	28	Rowley	8 09·2	1,400 00	–	1,400 00	173	–
20	29	Boxford	7 81·1	1,000 00	54 48	1,054 48	135	–
31	30	Middleton	7 62·9	1,150 00	63 04	1,213 04	159	–
27	31	Hamilton	7 53·9	800 00	66 99	866 99	115	–
30	32	Groveland	6 94·4	3,000 00	–	3,000 00	432	–
34	33	Rockport	6 26	4,958 00	–	4,958 00	792	–
33	34	Newbury	6·23 7	1,700 00	40 00	1,740 00	279	–
32	35	Lynnfield	5 55·6	600 00	–	600 00	108	–

FRANKLIN COUNTY.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
1	1	**GREENFIELD**	$12 25·4	$8,700 00	–	$8,700 00	710	–
2	2	Shelburne	11 84·1	3,000 00	$137 78	3,137 78	265	–
3	3	Orange	11 43	5,200 00	–	5,200 00	455	–
11	4	Wendell	10 11·2	600 00	26 95	626 95	62	$12 00
6	5	Charlemont	10 10 2	1,100 00	51 70	1,151 70	114	–
4	6	Ashfield	9 34·1	1,600 00	44 00	1,644 00	176	169 50

15	15	Leverett	7 16·8	800 00	53 00	853 00	119	–
17	16	Rowe	7 14·7	650 00	36 15	686 15	96	–
5	17	Montague	6 98·7	8,000 00	–	8,000 00	1,145	–
20	18	Colrain	6 88 7	2,000 00	66 00	2,066 00	300	85 00
16	19	Heath	6 79·6	700 00	–	700 00	103	–
23	20	Whately	6 39 8	1,350 00	–	1,350 00	211	–
21	21	Gill	6 20·1	800 00	–	800 00	129	132 00
18	22	Shutesbury	6 13·5	600 00	25 81	625 81	102	–
22	23	Leyden	5 21·7	600 00	–	600 00	115	–
26	24	Bernardston	4 82·8	683 00	79 80	762 80	158	50 00
24	25	Buckland	4 79	1,600 00	86 10	1,686 10	352	–
25	26	Monroe	3 84·6	200 00	–	200 00	52	–

HAMPDEN COUNTY.

1	1	SPRINGFIELD	$13 98·1	$82,000 00	–	$82,000 00	5,865	–
2	2	Westfield	13 27	17,259 68	$442 82	17,702 50	1,334	–
3	3	Longmeadow	12 91·7	2,950 00	163 09	3,113 09	241	–
6	4	West Springfield . .	10 21·6	7,241 78	226 23	7,468 01	731	–
8	5	Monson	9 62·4	5,428 47	240 19	5,668 66	589	–
4	6	Chicopee	9 45·8	20,675 00	–	20,675 00	2,186	–
5	7	Agawam	8 67	3,000 00	–	3,000 00	346	–
10	8	Palmer	8 41	9,000 00	218 00	9,218 00	1,096	–
11	9	Holyoke	7 83·6	33,000 00	436 05	33,436 05	4,267	–
13	10	Wilbraham	7 45·3	1,839 82	112 86	1,952 68	262	–
17	11	Blandford	7 03·6	1,440 62	64 98	1,505 60	214	$636 70
16	12	Hampden	6 70·7	1,100 00	80 38	1,180 38	176	–

HAMPDEN COUNTY—CONCLUDED.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
18	13	Granville	$6 66·6	$1,600 00	$66 43	$1,666 43	250	$63 00
12	14	Brimfield	6 57·3	1,400 00	–	1,400 00	213	–
9	15	Montgomery	6 53·8	425 00	–	425 00	65	–
15	16	Ludlow	6 41·7	2,000 00	117 48	2,117 48	330	–
14	17	Tolland	5 74·7	500 00	–	500 00	87	97 00
20	18	Chester	5 40·9	1,400 00	87 60	1,487 60	275	–
19	19	Southwick	4 72 9	900 00	78 99	978 99	207	–
21	20	Wales	4 52·9	800 00	51 50	851 50	188	–
7	21	Russell	3 85·7	500 00	39 95	539 95	140	–
22	22	Holland	3 42·6	200 00	15 88	215 88	63	–

HAMPSHIRE COUNTY.

1	1	GRANBY	$12 29·9	$1,600 00	$35 75	$1,635 75	133	–
2	2	South Hadley	11 33·8	7,881 89	157 07	8,038 96	709	–
5	3	Amherst	10 33·2	6,996 17	184 67	7,180 84	695	–
4	4	Northampton	9 38·2	19,600 00	–	19,600 00	2,089	–
16	5	Greenwich	9 17·4	1,025 06	39 15	1,064 21	116	–
13	6	Enfield	8 13·9	1,400 00	–	1,400 00	172	–

6	14	Chesterfield	6 80·7	900 00	19 00	919 00	[illegible]	[illegible]
14	15	Southampton . . .	6 59·4	1,250 00	68 80	1,318 80	200	–
19	16	Williamsburg . . .	6 42 9	2,500 00	97 45	2,597 45	404	35 00
18	17	Westhampton . . .	6 27 1	800 00	21 49	821 49	131	–
15	18	Middlefield	6 01·1	800 00	131 70	931 70	155	–
11	19	Prescott	5 97·2	500 00	25 56	525 56	88	–
20	20	Pelham	5 72 9	650 00	48 94	698 94	122	–
23	21	Hatfield	5 14·7	1,500 00	69 89	1,569 89	305	–
21	22	Cummington . . .	5 02·7	900 00	30 00	930 00	185	400 00
22	23	Goshen	4 05·4	300 00	–	300 00	74	110 00

MIDDLESEX COUNTY.

1	1	NEWTON	$21 98·7	$69,249 59	$712 50	$69,962 09	3,182	–
4	2	Winchester	21 31 4	12,000 00	–	12,000 00	563	–
2	3	Arlington	20 88 5	17,000 00	–	17,000 00	814	–
3	4	Lexington	20 00	8,400 00	–	8,400 00	420	–
5	5	Medford	19 40·8	23,367 00	–	23,367 00	1,204	–
8	6	Weston	18 98 4	3,550 00	–	3,550 00	187	–
11	7	Belmont	18 45 2	4,650 00	–	4,650 00	252	–
6	8	Watertown	17 56·7	15,020 00	–	15,020 00	855	–
7	9	Waltham	16 11·9	34,363 28	228 28	34,591 56	2,146	–
12	10	Reading	16 06·4	8,000 00	–	8,000 00	498	–
15	11	Malden	15 37	32,000 00	–	32,000 00	2,082	–
16	12	Framingham . . .	15 05 7	14,800 00	317 49	15,117 49	1,004	–
9	13	Cambridge	14 98 2	140,686 60	–	140,686 60	9,390	–
24	14	Carlisle	14 58	700 00	72 75	772 75	53	–
17	15	Groton	14 50·6	4,700 00	–	4,700 00	324	–

MIDDLESEX COUNTY — CONCLUDED.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
35	16	Woburn	$13 45·9	$30,000 00	–	$30,000 00	2,229	–
28	17	Lincoln	13 42·3	2,000 00	–	2,000 00	149	–
10	18	Somerville	13 30·3	67,233 00	–	67,233 00	5,054	–
19	19	Stoneham	13 24·7	11,750 00	–	11,750 00	887	–
25	20	Boxborough . . .	13 10	655 01	–	655 01	50	–
20	21	Lowell	13 09·4	119,430 00	–	119,430 00	9,121	–
18	22	Everett	12 95·8	9,899 88	–	9,899 88	764	$104 00
13	23	Concord	12 92·7	8,221 50	–	8,221 50	636	–
23	24	Wakefield	12 58·2	11,500 00	–	11,500 00	914	–
27	25	Sudbury	12 49·9	2,000 00	$287 45	2,287 45	183	–
14	26	Melrose	12 38·7	11,000 00	–	11,000 00	888	50 00
21	27	Littleton	12 32·3	2,021 00	–	2,021 00	164	–
26	28	Bedford	12 16·2	1,800 00	–	1,800 00	148	–
32	29	Sherborn	12 07·1	1,800 00	70 96	1,870 96	155	–
22	30	Dracut	11 57·7	3,000 00	102 60	3,102 60	268	–
41	31	Shirley	11 36·4	2,000 00	216 00	2,216 00	195	–
42	32	Wayland	11 24·9	4,000 00	139 51	4,139 51	368	–
47	33	Wilmington . . .	11 23·1	1,550 00	112 20	1,662 20	148	–
30	34	North Reading . . .	11 11·1	1,600 00	–	1,600 00	144	–
39	35	Ashby	10 87·5	1,750 00	54 27	1,804 27	166	–
31	36	Tyngsborough . . .	10 64·8	1,150 00	–	1,150 00	108	–
49	37	Burlington	10 46·8	1,200 00	98 04	1,298 04	124	–

		Holliston	9 61	16,000 00	–	16,000 00	1,665	–
38	44	Ashland	9 54·9	5,500 00	–	5,500 00	576	134 00
43	45	Hopkinton	9 44 6	4,033 00	198 93	4,231 93	448	–
46	46	Acton	9 10·2	8,000 00	373 94	8,373 94	920	32 56
45	47	Stow	9 01·9	2,500 00	178 67	2,678 67	297	–
44	48	Dunstable	9 01·3	1,700 00	84 56	1,784 56	198	–
40	49	Ayer	8 95 5	600 00	–	600 00	67	–
50	50	Billerica	8 90·6	3,500 00	–	3,500 00	393	–
54	51	Maynard	8 88·9	2,800 00	–	2,800 00	315	–
34	52	Westford	8 58·4	3,500 00	148 41	3,648 41	425	–
53	53	Marlborough	8 28·7	3,000 00	–	3,000 00	362	–
52	54	Pepperell	7 35·5	15,600 00	–	15,600 00	2,121	–
			6 45·2	2,400 00	–	2,400 00	372	–

NANTUCKET COUNTY.

		NANTUCKET	$7 70·5	$4,314 55	–	$4,314 55	560	–

NORFOLK COUNTY.

1	1	**BROOKLINE**	$27 62 8	$36,000 00	–	$36,000 00	1,303	–
2	2	Milton	24 30·5	13,391 95	–	13,391 95	551	–
3	3	Dedham	19 84·7	21,435 00	–	21,435 00	1,080	–
5	4	Needham	17 38 4	15,000 00	$384 75	15,384 75	885	$150 00
7	5	Walpole	14 36 2	5,300 00	–	5,300 00	369	110 00
9	6	Cohasset	13 87·8	5,500 00	217 64	5,717 64	412	–
8	7	Hyde Park	13 56·2	19,000 00	–	19,000 00	1,401	–

NORFOLK COUNTY—CONCLUDED.

For 1879–80.	For 1880–81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs. of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
12	8	Holbrook	$13 41·8	$4,700 00	$144 00	$4,844 00	361	–
4	9	Quincy	13 39·8	26,100 00	–	26,100 00	1,948	–
6	10	Norwood	13 37 9	5,900 00	–	5,900 00	441	–
14	11	Randolph	12 56·9	9,000 00	–	9,000 00	716	–
13	12	Weymouth	12 39·7	24,394 49	746 80	25,141 29	2,028	–
10	13	Wrentham	12 14 3	4,500 00	272 20	4,772 20	393	–
18	14	Medfield	11 94	2,400 00	–	2,400 00	201	–
17	15	Dover	11 68 6	1,100 00	68 60	1,168 60	100	–
15	16	Canton	11 50·4	10,400 00	402 14	10,802 14	939	–
20	17	Braintree	11 09·7	7,000 00	424 00	7,424 00	669	–
11	18	Stoughton	10 63·1	10,206 18	–	10,206 18	960	–
16	19	Foxborough	10 52·7	5,200 00	284 50	5,484 50	521	$38 00
21	20	Norfolk	10 03·2	1,200 00	84 07	1,284 07	128	–
19	21	Sharon	9 92 6	2,000 00	144 00	2,144 00	216	–
23	22	Franklin	9 81·3	6,300 00	–	6,300 00	642	–
22	23	Bellingham	9 66	1,800 00	277 07	2,077 07	215	–
24	24	Medway	9 38·3	7,000 00	–	7,000 00	746	–

PLYMOUTH COUNTY.

5	8	East Bridgewater . . .	10 48 2	5,000 00	–	5,000 00	477	–
9	9	Middleborough . . .	10 35·7	9,000 00	–	9,000 00	869	–
6	10	Brockton	10 15·6	22,700 00	324 44	23,024 44	2,267	–
7	11	Mattapoisett . . .	9 80 9	1,950 00	60 75	2,010 75	205	–
13	12	West Bridgewater . .	9 55·4	3,000 00	–	3,000 00	314	–
11	13	Wareham	9 46·0	4,900 00	303 00	5,203 00	550	–
16	14	South Scituate . . .	9 18 6	2,800 00	102 85	2,902 85	316	–
17	15	Hanover	8 63 3	2,750 00	99 00	2,849 00	330	–
22	16	Halifax	8 53 7	700 00	–	700 00	82	–
18	17	**Rockland**	8 49·4	7,500 00	–	7,500 00	883	–
26	18	**Rochester**	7 87·2	1,515 65	113 99	1,629 64	207	–
14	19	**South Abington** . . .	7 82 6	4,000 00	171 40	4,171 40	533	–
21	20	**Scituate**	7 59 3	3,850 00	136 41	3,986 41	525	–
15	21	**Marion**	7 53·9	1,200 00	66 61	1,266 61	168	–
27	22	**Carver**	7 44·8	1,200 00	95 91	1,295 91	174	–
20	23	**Plympton**	7 41·7	800 00	85 26	885 26	118	–
19	24	**Duxbury**	7 37·5	2,500 00	228 59	2,728 59	370	–
24	25	**Hanson**	6 82 9	1,600 00	80 05	1,680 05	246	–
23	26	Lakeville	6 46·2	1,421 77	–	1,421 77	220	–
25	27	Pembroke	5 59·7	1,500 00	–	1,500 00	268	–

SUFFOLK COUNTY.

1	1	BOSTON	$25 18·2	$1,300,090 41	$152,971 91	$1,453,062 32	57,703	–
3	2	Chelsea	12 62·5	46,056 39	–	46,056 39	3,648	–
2	3	Revere	12 46·8	5,000 00	–	5,000 00	401	–
4	4	Winthrop	9 80·4	1,500 00	–	1,500 00	153	–

WORCESTER COUNTY.

For 1879-80.	For 1880-81.	TOWNS.	Sum appropriated by towns for each child between 5 and 15 yrs of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
1	1	LANCASTER	$16 60·7	$4,633 36	–	$4,633 36	279	–
5	2	Barre	13 85·1	4,600 00	$178 61	4,778 61	345	–
9	3	Uxbridge	13 41 3	6,000 00	196 95	6,196 95	462	–
13	4	Southborough . . .	13 17·4	4,500 00	84 50	4,584 50	348	–
3	5	Fitchburg	13 06·3	30,500 00	119 72	30,619 72	2,344	–
2	6	Northborough . . .	12 85·1	3,200 00	–	3,200 00	249	–
10	7	Sterling	12 33·4	2,800 00	–	2,800 00	227	–
8	8	Upton.	12 04·8	4,000 00	–	4,000 00	332	–
4	9	New Braintree . . .	11 60·1	1,345 75	–	1,345 75	116	–
7	10	Worcester	11 40·4	125,305 90	–	125,305 90	10,988	–
12	11	Petersham	11 35·6	1,851 00	70 47	1,930 47	170	–
11	12	Shrewsbury . . .	11 23 6	3,000 00	–	3,000 00	267	–
26	13	Boylston	11 07·6	1,750 00	–	1,750 00	158	–
16	14	Leominster. . . .	10 61 3	9,350 00	–	9,350 00	881	–
6	15	Clinton	10 39	17,361 72	–	17,361 72	1,671	–
18	16	Brookfield	10 24	4,800 00	166 80	4,966 80	485	$37 00
27	17	Leicester	10 21·7	5,400 00	260 13	5,660 13	554	–
31	18	Harvard	10 15·2	2,000 00	–	2,000 00	197	–
30	19	Charlton	10 03·3	3,000 00	–	3,000 00	299	–
25	20	Milford	9 98·7	18,702 00	214 04	18,916 04	1,894	–
17	21	Douglas	9 95·1	4,100 00	–	4,100 00	412	–
14	22	Athol	9 91·7	6,500 00	214 04	6,714 04	677	–

33	29	Hubbardston	9 00·9	2,000 00	–	2,000 00	222	–
38	30	North Brookfield . . .	9 00	7,000 00	191 26	7,191 26	799	–
24	31	Lunenburg	8 98	1,200 00	93 24	1,293 24	144	–
43	32	West Brookfield . . .	8 90·2	3,000 00	–	3,000 00	337	–
35	33	Grafton	8 76·5	7,100 00	–	7,100 00	810	–
19	34	Northbridge . . .	8 70·6	7.400 00	–	7,400 00	850	–
40	35	Paxton	8 62·1	1,000 00	–	1,000 00	116	–
21	36	Templeton	8 56	4,500 00	139 34	4,639 34	542	–
28	37	Millbury	8 28·2	8,000 00	–	8,000 00	966	–
37	38	Blackstone	8 20·2	7,500 00	357 31	7,857 31	958	–
49	39	Bolton	8 10·8	1,200 00	–	1,200 00	148	–
23	40	Royalston	8 09·8	1,500 00	70 99	1,570 99	194	187 50
34	41	Oxford	8 08·1	4,000 00	–	4,000 00	495	–
29	42	Southbridge . . .	8 06·4	10,314 00	–	10,314 00	1,279	–
45	43	Phillipston	7 33·6	800 00	73 11	873 11	119	–
42	44	Dudley	7 21·6	4,200 00	151 52	4,351 52	603	–
53	45	Mendon	7 18·3	1,300 00	107 94	1,407 94	196	–
44	46	Winchendon . . .	7 07·4	4,824 63	–	4,824 63	682	–
36	47	Rutland	6 98·7	1,600 00	–	1,600 00	229	–
46	48	Webster	6 98·5	6,300 00	259 60	6,559 60	939	–
41	49	Warren	6 96·9	6,000 00	–	6,000 00	861	–
47	50	Spencer	6 93·7	10,350 00	–	10,350 00	1,492	–
50	51	Dana	6 76·1	700 00	30 20	730 20	108	–
48	52	Oakham	6 24·2	750 00	92 72	842 72	135	16 00
51	53	Holden	6 20·8	2,818 57	194 44	3,013 01	485	–
57	54	Sutton	5 74	4,150 00	–	4,150 00	723	–
52	55	Berlin	5 69·1	1,000 00	86 89	1,086 89	191	–
58	56	Auburn	5 51·9	1,150 00	113 91	1,263 91	229	–
54	57	West Boylston . . .	5 37·5	3,300 00	–	3,300 00	614	–
56	58	Hardwick	5 30·4	2,300 00	108 08	2,408 08	454	–

GRADUATED TABLES — First Series.

Showing the Comparative Amount of Money appropriated by the different Counties in the State for the Education of each Child between the Ages of 5 and 15 Years in the County.

For 1879-80.	For 1880-81.	COUNTIES.	Sum appropriated by counties for each child between 5 and 15 years of age.	Amount raised by taxes for the support of Schools.	Income of Funds, with Dog Tax, appropriated to Schools.	TOTAL.	No. of Children between 5 and 15 years of age.	Amount contributed for board and fuel.
1	1	Suffolk	$24 32·1	$1,352,646 80	$152,971 91	$1,505,618 71	61,905	–
3	2	Norfolk	14 41·4	244,827 68	3,449 77	248,277 45	17,225	$298 00
2	3	Middlesex . . .	13 88·8	770,279 86	3,763 16	774,043 02	55,736	320 56
4	4	Essex	11 07·3	471,656 43	4,799 17	476,455 60	43,028	1,200 00
6	5	Bristol	10 98·4	266,555 13	3,466 60	270,021 73	24,584	27 00
5	6	Hampden . . .	10 30·6	194,660 37	2,443 23	197,103 23	19,125	796 70
7	7	Plymouth . . .	10 14 8	128,197 83	2,629 77	130,827 60	12,892	–
8	8	Barnstable . . .	9 97·9	54,998 55	1,632 41	56,630 96	5,675	64 00
10	9	Worcester . . .	9 78 9	408,106 93	3,957 65	412,064 58	42,094	414 50
9	10	Dukes	8 89 6	5,320 00	35 32	5,355 32	602	–
11	11	Franklin	8 30 9	52,383 00	1,265 33	53,658 33	6,458	528 50
12	12	Hampshire . . .	8 22 8	70,853 12	1,432 40	72,285 52	8,785	1,177 12
14	13	Nantucket . . .	7 70 5	4,314 55	–	4,314 55	560	–
13	14	Berkshire . . .	7 64·7	105,913 86	1,225 64	107,139 50	14,011	453 25

AGGREGATE FOR THE STATE.

GRADUATED TABLES — FIRST SERIES.

wing the Comparative Amount of Money, including Voluntary ontributions, appropriated by the different Counties in the State r the Education of each Child between the Ages of 5 and 15 Years the County.

	For 1880-81.	COUNTIES.	TOTALS.
	1	Suffolk	$24 32·1
3	2	Norfolk	14 43·1
2	3	Middlesex	13 89·2
4	4	Essex	11 10·1
6	5	Bristol	10 98·5
5	6	Hampden	10 34·8
7	7	Plymouth	10 14·8
	8	Barnstable	9 99
	9	Worcester	9 79·9
	10	Dukes	8 89·6
	11	Franklin	8 39·1
	12	Hampshire	8 36·2
	13	Nantucket	7 70·5
	14	Berkshire	7 67·9
Aggregate for the State			$13 81·3

GRADUATED TABLES — SECOND SERIES.

THE next Table exhibits the appropriation of the cities and to compared with their respective valuations in 1881.

The first column shows the rank of the cities and towns in a Table for 1879-80, according to their valuation in 1880.

The second column indicates, in numerical order, the precedence cities and towns in respect to the liberality of their appropriati 1880-81, according to their valuation in 1881.

The third consists of the names of the cities and towns, as num arranged.

The fourth shows the percentage of taxable property appropriated support of the public schools. The result is equivalent in value t and hundredths of mills. The decimals are carried to three figures, i to indicate more perfectly the distinction between the different towns first figure (mills) expresses the principal value, and is separated fr last two figures by a point.

The appropriations for schools are not given in the following Ta they may be found by referring to the previous Tables; also in the A of School-Returns, commencing on page ii. These appropriations the sum raised by taxes, the income of the surplus revenue, and other funds as the towns may appropriate at their option, either to common schools, or to pay ordinary municipal expenses. The inc other local funds, and the voluntary contributions, are not included estimate. The appropriations are reckoned the same as in the firs of Tables, and for the same reasons.

The amount of taxable property, in each city and town, accordin last State valuation, is also omitted, as it is already given in the fo Abstract of School-Returns.

If the rank assigned to towns in the next Tables is compared w rank of the same town in the former series, it will be seen that the in many instances, a very different place in the scale.

GRADUATED TABLES — SECOND SERIES.

[FOR THE STATE.]

aduated Table, in which all the Towns in the State are numerically anged according to the Percentage of their Taxable Property ap- priated to the Support of Public Schools for the year 1880–81.

For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	HAWLEY . .	$.006-63	92	34	W.Stockb'dge,	$.004-23
2	Gay Head .	6-12	38	35	Marlborough .	4-19
3	Truro . .	5-93	35	36	Rehoboth .	4-19
4	Orleans . .	5-58	20	37	Haverhill .	4-17
5	Wellfleet .	5-57	48	38	Mansfield .	4-17
6	Sandwich .	5-33	61	39	Belchertown .	4-13
7	Chatham .	5-24	47	40	Rowe . .	4-10
8	Peru . .	5-18	27	41	Milford . .	4-09
9	Monroe . .	5-07	79	42	Brookfield .	4-08
10	South Hadley .	4-87	85	43	Palmer . .	4-08
11	Mashpee. .	4-85	59	44	Bradford .	4-07
12	Upton . .	4-81	45	45	Pelham . .	4-06
13	Otis . .	4-75	5	46	Provincetown .	4-03
14	Wareham .	4-75	28	47	Chicopee .	4-02
15	Granville .	4-74	43	48	Attleborough .	4-01
16	Dudley . .	4-68	68	49	Bridgewater .	4-01
17	Dennis . .	4-62	55	50	Heath . .	3-99
18	Stoughton .	4-62	116	51	Hudson . .	3-97
19	Georgetown .	4-61	73	52	Lee . .	3-95
20	Holbrook .	4-59	42	53	Northbridge .	3-94
21	Medway .	4-57	63	54	Stoneham .	3-93
22	Weymouth .	4-50	58	55	Shelburne .	3-92
23	Blandford .	4-49	66	56	Monterey .	3-91
24	Amesbury .	4-40	65	57	Blackstone .	3-90
25	Harwich .	4-38	261	58	Greenwich .	3-90
26	Gloucester .	4-35	74	59	Merrimac .	3-90
27	Randolph .	4-35	76	60	Walpole . .	3-90
28	Eastham .	4-34	39	61	Shutesbury .	3-88
29	Hyde Park .	4-34	115	62	Saugus . .	3-85
30	Templeton .	4-33	101	63	Ashby . .	3-84
31	Abington .	4-32	52	64	Granby . .	3-83
32	Erving . .	4-24	23	65	Becket . .	3-82
33	Monson . .	4-24	109	66	N. Brookfield .	3-82

For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.
72	67	Florida . .	$.003–80	137	117	Longmeadow .
119	68	Northfield .	3–80	105	118	Buckland .
71	69	Plymouth .	3–80	161	119	Methuen .
31	70	Wrentham .	3–79	130	120	Middleboro' .
125	71	Dighton . .	3–77	163	121	Raynham .
46	72	Bellingham .	3–76	96	122	Ayer . .
64	73	Deerfield .	3–75	143	123	Ashland .
80	74	Ashfield . .	3–74	103	124	Westminster .
50	75	E Bridgewat'r,	3–74	178	125	Wayland .
67	76	Foxborough .	3–74	51	126	Brockton .
106	77	Charlemont .	3–73	155	127	Fairhaven .
87	78	Waltham .	3–73	171	128	Wakefield .
114	79	North Adams .	3–72	149	129	Hanson . .
89	80	Berkley . .	3–70	90	130	Clarksburg .
56	81	Warwick .	3–68	121	131	Pittsfield .
25	82	Douglas . .	3–67	100	132	Cheshire .
62	83	Marblehead .	3–67	154	133	Lexington .
29	84	Wendell .	3–66	176	134	Needham .
77	85	Rockland .	3–65	127	135	Ipswich . .
175	86	Woburn .	3–65	75	136	Arlington .
207	87	Rochester .	3–64	212	137	Conway . .
78	88	Grafton . .	3-63	141	138	Spencer . .
82	89	Salisbury .	3–63	122	139	Westhampton,
54	90	Adams . .	3–62	133	140	Petersham .
117	91	Millbury .	3-61	128	141	Barre . .
18	92	Clinton . .	3-60	81	142	Rutland . .
99	93	N. Andover .	3–60	57	143	Washington .
83	94	Tyngsborough,	3–57	202	144	Montague .
86	95	Paxton . .	3–56	157	145	Westborough .
120	96	Colrain . .	3–55	94	146	Fitchburg .
158	97	Southborough,	3–54	118	147	New Marlboro'
183	98	Danvers . .	3–53	140	148	Phillipston .
124	99	Dedham . .	3–53	134	149	Sandisfield .
206	100	Hinsdale .	3–53	146	150	Uxbridge .
88	101	Barnstable .	3–52	142	151	W. Boylston .
91	102	New Salem .	3–52	173	152	Winchester .
156	103	Leicester .	3–50	53	153	Norfolk . .
104	104	Hopkinton .	3–49	189	154	Townsend .
198	105	Orange . .	3–49	135	155	Chelmsford .
98	106	Franklin .	3–48	153	156	Leverett .
95	107	Canton . .	3–47	136	157	Greenfield .
102	108	Groveland .	3–47	150	158	Peabody .
185	109	W.Bri'gewat'r,	3–47	172	159	Reading . .
205	110	W. Brookfield,	3–47	148	160	Ashburnham .
177	111	Sturbridge .	3–46	108	161	Montgomery .
164	112	Boylston .	3–45	159	162	Gardner . .
97	113	Quincy . .	3–45	113	163	Webster .
160	114	Southbridge .	3–45	126	164	Holliston .
107	115	Natick . .	3–44	123	165	Newburyport .
84	116	Ware . .	3–44	144	166	Norwood .

State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1880.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
67	Scituate	$.003-10	225	217	Wilbraham	$.002-79
68	S. Scituate	3–10	180	218	Worthington	2–79
69	Malden	3–10	224	219	Littleton	2–78
70	Westport	3–09	235	220	Rowley	2–77
71	Medford	3–08	191	221	Cambridge	2–75
72	Lakeville	3–07	131	222	Prescott	2–75
73	Chesterfield	3–06	169	223	Tolland	2–75
74	Hingham	3–06	36	224	Plainfield	2–74
75	Shirley	3–06	238	225	Concord	2–73
76	Hampden	3–05	274	226	Williamsburg	2–73
77	Leyden	3–05	268	227	Shrewsbury	2–72
78	Plympton	3–05	269	228	Wenham	2–72
79	Framingham	3–04	168	229	Lynn	2-71
80	Sterling	3–04	245	230	Seekonk	2–70
81	Sutton	3–03	241	231	Southampton	2–69
82	Holden	3–02	285	232	Halifax	2–68
83	Chester	3-01	252	233	Auburn	2-67
84	Swansea	3-01	229	234	Dartmouth	2-67
85	W. Newbury	2-99	246	235	Hanover	2–66
86	N. Reading	2-98	266	236	Norton	2–66
87	Somerville	2–98	223	237	Gt. Barringt'n,	2–65
88	Westfield	2-98	310	238	Burlington	2–64
89	Easthampton	2-97	231	239	Lenox	2-63
90	Freetown	2-97	312	240	Cummington	2-62
91	Melrose	2-97	260	241	Winchendon	2–62
92	Salem	2-97	265	242	New Bedford	2-61
93	Tisbury	2-97	219	243	Lawrence	2–60
94	Wilmington	2–96	272	244	W. Springfield,	2–59
95	Oxford	2-95	217	245	Dana	2–57
96	Brimfield	2-94	255	246	Tyringham	2-56
97	Worcester	2-94	247	247	Dover	2-54
98	Andover	2-93	248	248	Duxbury	2–54
99	Warren	2-93	263	249	Marshfield	2-54
00	Charlton	2-92	174	250	Pembroke	2-54
01	Chelsea	2-92	243	251	Amherst	2-53
02	Sheffield	2-92	259	252	Braintree	2–53
03	Acushnet	2-90	249	253	Carver	2-52
04	Middlefield	2-90	228	254	Taunton	2–52
05	Athol	2-88	281	255	Rockport	2–50
06	Ludlow	2-88	242	256	Springfield	2–50
07	Northborough,	2–87	226	257	Dracut	2-49
08	NewBraintree,	2-86	278	258	Leominster	2-49
09	Whately	2-86	220	259	Northampton	2-49
10	Sunderland	2-85	216	260	Savoy	2–49
11	Huntington	2-84	257	261	Hubbardston	2-48
12	Williamstown,	2-84	234	262	Agawam	2-47
13	Westford	2-83	264	263	Bolton	2-46
14	Yarmouth	2-82	239	264	Somerset	2-46
15	Holyoke	2-79	303	265	Harvard	2-41
16	Lowell	2-79	253	266	Egremont	2–39

For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.
273	267	Bedford . .	$.002-35	296	307	Lanesborough,
256	268	Middleton .	2-34	267	308	Revere . .
262	269	Oakham .	2-34	301	309	Enfield . .
250	270	Boxborough .	2-33	333	310	Bernardston .
314	271	Dalton . .	2-33	305	311	Windsor .
291	272	Hardwick .	2-33	313	312	Stockbridge .
277	273	Everett . .	2-32	311	313	Cohasset .
280	274	Mendon . .	2-30	276	314	Sharon . .
215	275	Royalston .	2-30	302	315	S. Abington .
294	276	Maynard .	2-27	328	316	Carlisle . .
227	277	Newton . .	2-27	307	317	Groton . .
289	278	Fall River .	2-26	300	318	Watertown .
309	279	Hadley . .	2-24	319	319	Gill . .
326	280	Richmond .	2-24	331	320	Princeton .
283	281	Acton . .	2-22	304	321	Lunenburg .
287	282	Sudbury .	2-22	308	322	Tewksbury .
297	283	Swampscott .	2-22	330	323	Beverly . .
318	284	Alford . .	2-21	320	324	Nantucket .
284	285	Berlin . .	2-21	321	325	Holland . .
295	286	Boston . .	2-18	329	326	Billerica .
210	287	Easton . .	2-18	286	327	Boxford . .
271	288	Kingston .	2-18	324	328	Pepperell .
299	289	Medfield .	2-18	327	329	Southwick .
270	290	Brewster .	2-17	323	330	Mattapoisett .
214	291	Marion . .	2-17	306	331	Falmouth .
316	292	Sherborn .	2-17	332	332	Brookline .
290	293	Goshen . .	2-16	337	333	Hatfield . .
317	294	Lincoln . .	2-16	334	334	Hamilton .
282	295	Weston . .	2-14	279	335	Belmont .
292	296	Chilmark .	2-13	339	336	New Ashford .
288	297	Dunstable .	2-12	338	337	Milton . .
275	298	Lancaster .	2-12	254	338	Russell . .
322	299	Topsfield .	2-12	336	339	Lynnfield .
325	300	Wales . .	2-12	342	340	Nahant . .
298	301	Edgartown .	2-10	341	341	Winthrop .
188	302	Mt. Wash'gton,	2-10	340	342	Manchester .
315	303	Newbury .	2-09	345	343	Cottage City .
204	304	Essex . .	2-08	344	344	Hull . .
335	305	Hancock .	2-08	343	345	Gosnold . .
293	306	Stow . .	2-05		346	Wellesley * .

* New town, incorporated April 6, 1881; returns included with Needham.

GRADUATED TABLES — SECOND SERIES.

[COUNTY TABLES.]

ich all the Towns in the respective Counties in the State are erically arranged according to the Percentage of their Taxable erty appropriated for the Support of Public Schools for the 1880–81.

BARNSTABLE COUNTY.

State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public schools—equivalent to mills and hundredths of mills.
1	**TRURO** . .	$ 005-93	10	8	Harwich .	$.004-38
2	Orleans . .	5-58	6	9	Eastham .	4-34
3	Wellfleet .	5-57	3	10	Provincetown .	4-03
4	Sandwich .	5-33	11	11	Barnstable .	3-52
5	Chatham .	5-24	12	12	Yarmouth .	2-82
6	Mashpee .	4-85	13	13	Brewster .	2-17
7	Dennis . .	4-62	14	14	Falmouth .	1-57

BERKSHIRE COUNTY.

1	**PERU** . .	$ 005-18	17	17	Sheffield .	$.002-92
2	Otis . .	4-75	22	18	Williamstown,	2-84
3	W. Stockb'dge,	4-23	20	19	Gt. Barringt'n,	2-65
4	Lee . .	3-95	21	20	Lenox . .	2-63
5	Monterey .	3-91	24	21	Tyringham .	2-56
6	Becket . .	3-82	19	22	Savoy . .	2-49
7	Florida . .	3-80	23	23	Egremont .	2-39
8	North Adams .	3-72	28	24	Dalton . .	2-33
9	Adams . .	3-62	30	25	Richmond .	2-24
10	Hinsdale .	3-53	29	26	Alford . .	2-21
11	Clarksburg .	3-33	16	27	Mt. Wash'gton,	2-10
12	Pittsfield .	3-33	31	28	Hancock .	2-08
13	Cheshire .	3-32	25	29	Lanesborough,	2-04
14	Washington .	3-24	26	30	Windsor .	2-02
15	NewMarlboro',	3-21	27	31	Stockbridge .	2-01
16	Sandisfield .	3-20	32	32	New Ashford .	1-32

BRISTOL COUNTY.

For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.
1	1	REHOBOTH	$.004-19	9	11	Acushnet
3	2	Mansfield	4-17	16	12	Seekonk
2	3	Attleborough	4-01	13	13	Dartmouth
5	4	Dighton	3-77	18	14	Norton
4	5	Berkley	3-70	17	15	New Bedford
8	6	Raynham	3-41	12	16	Taunton
7	7	Fairhaven	3-35	15	17	Somerset
14	8	Westport	3-09	19	18	Fall River
10	9	Swanzey	3-01	11	19	Easton
6	10	Freetown	2-97			

DUKES COUNTY.

For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.
1	1	GAY HEAD	$.006-12	4	4	Edgartown
2	2	Tisbury	2-97	6	5	Cottage City
3	3	Chilmark	2-13	5	6	Gosnold

ESSEX COUNTY.

For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.
4	1	GEORGETOWN	$.004-61	20	19	Andover
1	2	Amesbury	4-40	23	20	Rowley
3	3	Gloucester	4-35	25	21	Wenham
2	4	Haverhill	4-17	16	22	Lynn
5	5	Bradford	4-07	21	23	Lawrence
7	6	Merrimac	3-90	26	24	Rockport
11	7	Saugus	3-85	24	25	Middleton
6	8	Marblehead	3-67	28	26	Swampscott
8	9	Salisbury	3-63	30	27	Topsfield
9	10	N. Andover	3-60	29	28	Newbury
18	11	Danvers	3-53	19	29	Essex
10	12	Groveland	3-47	31	30	Beverly
15	13	Methuen	3-41	27	31	Boxford
13	14	Ipswich	3-31	32	32	Hamilton
14	15	Peabody	3-17	33	33	Lynnfield
12	16	Newburyport	3-12	35	34	Nahant
17	17	W. Newbury	2-99	34	35	Manchester
22	18	Salem	2-97			

FRANKLIN COUNTY.

For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	**HAWLEY** . .	$.006-63	16	14	Colrain . .	$.003-55
2	Monroe . .	5-07	11	15	New Salem .	3-52
3	Erving . .	4-24	21	16	Orange . .	3-49
4	Rowe . .	4-10	13	17	Buckland .	3-41
5	Heath . .	3-99	23	18	Conway . .	3-27
6	Shelburne .	3-92	22	19	Montague .	3-23
7	Shutesbury .	3-88	18	20	Leverett .	3-18
8	Northfield .	3-80	17	21	Greenfield .	3-17
9	Deerfield .	3-75	19	22	Leyden . .	3-05
10	Ashfield .	3-74	24	23	Whately .	2-86
11	Charlemont .	3-73	20	24	Sunderland .	2-85
12	Warwick .	3-68	26	25	Bernardston .	2-02
13	Wendell . .	3-66	25	26	Gill. . .	1-89

HAMPDEN COUNTY.

1	**GRANVILLE** . .	$.004.74	7	12	Ludlow . .	$.002-88
2	Blandford .	4-49	15	13	Holyoke .	2-79
3	Monson . .	4-24	13	14	Wilbraham .	2-79
4	Palmer . .	4-08	11	15	Tolland . .	2-75
5	Chicopee .	4-02	19	16	W. Springfield,	2-59
6	Longmeadow .	3-42	17	17	Springfield .	2-50
7	Montgomery .	3-16	14	18	Agawam .	2-47
8	Hampden .	3-05	21	19	Wales . .	2-12
9	Chester . .	3-01	20	20	Holland . .	1-82
10	Westfield .	2-98	22	21	Southwick .	1-63
11	Brimfield .	2-94	18	22	Russell . .	1-23

HAMPSHIRE COUNTY.

1	**SOUTH HADLEY** .	$.004-87	9	13	Prescott . .	$.002-75
2	Belchertown .	4-13	2	14	Plainfield .	2-74
3	Pelham . .	4-06	18	15	Williamsburg.	2-73
4	Greenwich .	3-90	15	16	Southampton .	2-69
5	Granby . .	3-83	22	17	Cummington .	2-62
6	Ware . .	3-44	16	18	Amherst .	2-53
7	Westhampton,	3-26	14	19	Northampton .	2-49
8	Chesterfield .	3-06	21	20	Hadley . .	2-24
9	Easthampton .	2-97	19	21	Goshen . .	2-16
10	Middlefield .	2-90	20	22	Enfield . .	2-03
11	Huntington .	2-84	23	23	Hatfield . .	1-51
12	Worthington .	2-79				

MIDDLESEX COUNTY.

For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.
1	1	**MARLBOROUGH**	$.004-19	29	28	Wilmington
12	2	Hudson	3-97	25	29	Westford
2	3	Stoneham	3-93	33	30	Lowell
7	4	Ashby	3-84	30	31	Littleton
5	5	Waltham	3-73	27	32	Cambridge
22	6	Woburn	3-65	35	33	Concord
4	7	Tyngsborough,	3-57	49	34	Burlington
8	8	Hopkinton	3-49	31	35	Dracut
9	9	Natick	3-44	37	36	Bedford
6	10	Ayer	3-40	36	37	Boxborough
17	11	Ashland	3-39	38	38	Everett
23	12	Wayland	3-36	45	39	Maynard
19	13	Wakefield	3-35	32	40	Newton
18	14	Lexington	3-32	41	41	Acton
3	15	Arlington	3-28	42	42	Sudbury
21	16	Winchester	3-20	50	43	Sherborn
26	17	Townsend	3-19	51	44	Lincoln
14	18	Chelmsford	3-18	40	45	Weston
20	19	Reading	3-17	43	46	Dunstable
13	20	Holliston	3-13	44	47	Stow
28	21	Malden	3-10	53	48	Carlisle
15	22	Medford	3-08	47	49	Groton
34	23	Shirley	3-06	46	50	Watertown
24	24	Framingham	3-04	48	51	Tewksbury
16	25	No. Reading	2-98	54	52	Billerica
10	26	Somerville	2-98	52	53	Pepperell
11	27	Melrose	2-97	39	54	Belmont

NANTUCKET COUNTY.

		NANTUCKET

NORFOLK COUNTY.

For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.
1	1	**STOUGHTON**	$.004-62	10	10	Foxborough
2	2	Holbrook	4-59	15	11	Dedham
8	3	Medway	4-57	14	12	Franklin
3	4	Weymouth	4-50	12	13	Canton
6	5	Randolph	4-35	13	14	Quincy
5	6	Hyde Park	4-34	17	15	Needham *
11	7	Walpole	3-90	9	16	Norfolk
4	8	Wrentham	3-79	16	17	Norwood
7	9	Bellingham	3-76	18	18	Dover

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* Includes Wellesley, incorporated April 6, 1881.

NORFOLK COUNTY—Concluded.

	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills
	19	Braintree .	$.002-53	23	23	Brookline .	$.001-52
	20	Medfield .	2-18	24	24	Milton . .	1-30
	21	Cohasset .	2-00	–	25	Wellesley .	–
	22	Sharon . .	1-96				

PLYMOUTH COUNTY.

	1	Wareham .	$.004-75	11	15	Hingham .	$.003-06
	2	Abington .	4-32	12	16	Plympton .	3-05
	3	Bridgewater .	4-01	24	17	Halifax . .	2-68
	4	Plymouth .	3-80	19	18	Hanover .	2-66
	5	E. Bridgew'r .	3-74	20	19	Duxbury .	2-54
	6	Rockland .	3-65	22	20	Marshfield .	2-54
	7	Rochester .	3-64	13	21	Pembroke .	2-54
	8	W. Bridgew'r,	3-47	21	22	Carver . .	2-52
	9	Middleboro' .	3-41	23	23	Kingston .	2-18
	10	Brockton .	3-35	18	24	Marion . .	2-17
	11	Hanson . .	3-34	25	25	S. Abington .	1-95
	12	Scituate . .	3-10	26	26	Mattapoisett .	1-59
	13	S. Scituate .	3-10	27	27	Hull . .	0-61
	14	Lakeville .	3-07				

SUFFOLK COUNTY.

1	1	CHELSEA . .	$.002-92	2	3	Revere . .	$.002-04
3	2	Boston . .	2-18	4	4	Winthrop .	0-96

WORCESTER COUNTY.

2	1	UPTON . .	$ 004-81	17	11	Millbury .	$.003-61
1	2	Dudley . .	4-68	3	12	Clinton . .	3-60
6	3	Templeton .	4-33	12	13	Paxton . .	3-56
5	4	Milford . .	4-09	28	14	Southborough,	3-54
	5	Brookfield .	4-08	26	15	Leicester .	3-50
	6	Northbridge .	3-94	38	16	W. Brookfield,	3-47
	7	Blackstone .	3-90	34	17	Sturbridge .	3-46
	8	N. Brookfield .	3-82	31	18	Boylston .	3-45
	9	Douglas . .	3-67	30	19	Southbridge .	3-45
	10	Grafton . .	3-63	14	20	Westminster .	3-38

WORCESTER COUNTY — CONCLUDED.

For 1879-80, by th State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	TOWNS.
21	21	Spencer	$.003-26	37	40	Athol
19	22	Petersham	3-25	43	41	Northborough
18	23	Barre	3-24	44	42	NewBraintree
11	24	Rutland	3-24	50	43	Shrewsbury
27	25	Westborough	3-23	45	44	Auburn
13	26	Fitchburg	3-22	47	45	Winchendon
20	27	Phillipston	3-21	41	46	Dana
24	28	Uxbridge	3-20	52	47	Leominster
22	29	W. Boylston	3-20	46	48	Hubbardston
25	30	Ashburnham	3-16	49	49	Bolton
29	31	Gardner	3-14	56	50	Harvard
16	32	Webster	3-14	48	51	Oakham
23	33	Sterling	3-04	55	52	Hardwick
42	34	Sutton	3-03	53	53	Mendon
32	35	Holden	3-02	40	54	Royalston
39	36	Oxford	2-95	54	55	Berlin
35	37	Worcester	2-94	51	56	Lancaster
33	38	Warren	2-93	58	57	Princeton
36	39	Charlton	2-92	57	58	Lunenburg

Showing the different Counties in the State, numerically arranged, according to the Percentage of their Taxable Property appropriated for the Support of Public Schools for the year 1880–81.

For 1879–80, by the State Valuation of 1880.	For 1880–81, by the State Valuation of 1881.	COUNTIES.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	Amount of money raised by taxes for the support of Public Schools.	Income of surplus Revenue and of similar funds appropriated for Public Schools.	TOTAL.	Valuation of 1880.	Amount contributed for board and fuel.
1	1	BARNSTABLE . . .	$.003-64	$54,998 55	$1,632 41	$56,630 96	$15,555,286 00	$64 00
4	2	Franklin . . .	3–39	52,383 00	1,265 33	53,658 33	15,808,509 00	528 50
3	3	Plymouth . . .	3–15	128,197 83	2,629 77	130,827 60	41,597,896 00	–
10	4	Worcester . . .	3–14	408,106 93	3,957 65	412,064 58	131,054,438 00	414 50
5	5	Berkshire . . .	3–13	105,913 86	1,225 64	107,139 50	34,197,842 00	453 25
6	6	Essex . . .	2–93	471,656 43	4,799 17	476,455 60	162,413,423 00	1,200 00
2	7	Middlesex . . .	2–88	770,279 86	3,763 16	774,043 02	268,986,013 00	320 56
7	8	Hampshire . .	2–86	70,853 12	1,432 40	72,285 52	25,285,744 00	1,177 12
8	9	Hampden . . .	2–83	194,660 37	2,443 23	197,103 60	69,758,223 00	796 70
9	10	Norfolk . . .	2–78	244,827 68	3,449 77	248,277 45	89,424,009 00	298 00
11	11	Bristol . . .	2–61	266,555 13	3,466 60	270,021 73	103,294,547 00	27 00
12	12	Suffolk . . .	2–20	1,352,646 80	152,971 91	1,505,618 71	685,321,125 00	–
13	13	Nantucket . .	1–83	4,314 55	–	4,314 55	2,352,123 00	–
14	14	Dukes . . .	1–68	5,320 00	35 32	5,355 32	3,190,798 00	–

AGGREGATE FOR THE STATE.

14 Counties	$.002–62	$4,130,714 11	$183,072 36	$4,313,786 47	$1,648,239,976 00	$5,279 63

GRADUATED TABLES — SECOND SERIES.

Showing the Arrangement of Counties according to their App
tions, including Voluntary Contributions.

If the counties are numerically arranged, according to the percen
their valuations appropriated for public schools, voluntary contr
of board and fuel being added to the sum raised by tax and to the
of the surplus revenue and other funds, as severally given in the
table, the order of precedence will be as follows : —

For 1879-80, by the State Valuation of 1880.	For 1880-81, by the State Valuation of 1881.	COUNTIES.	Percentag ation ap to Public equivale and hun mills.
1	1	**BARNSTABLE**	$.00
3	2	Franklin	
5	3	Berkshire	
4	4	Plymouth	
10	5	Worcester	
6	6	Essex	
7	7	Hampshire	
2	8	Middlesex	
8	9	Hampden	
9	10	Norfolk	
11	11	Bristol	
12	12	Suffolk	
13	13	Nantucket	
14	14	Dukes	
Aggregate for the State			$.00

GRADUATED TABLES — THIRD SERIES.

HE following Table exhibits the ratio of the average attendance for the in each town to the whole number of children between 5 and 15, rding to the returns.

he ratio is expressed in decimals, continued to four figures, the first two hich are separated from the last two by a point, as only the two former ssential to denote the real per cent. Yet the ratios of many towns are early equal, or the difference is so small a fraction, that the first two nals, with the appropriate mathematical sign appended, indicate no nction. The continuation of the decimals, therefore, is simply to indi- a priority in cases where, without such continuation, the ratios would ar to be precisely similar.

several cases the ratio of attendance exhibited in the Table is over 100 ent. These results, supposing the registers to have been properly kept the returns correctly made, are to be thus explained: The average idance upon all Public Schools being compared with the whole number ildren in the town between 5 and 15, the result may be over 100 per , because the attendance of children under 5 and over 15 may more compensate for the absence of children between those ages. The rank e towns standing highest in the following Table is in accordance with eturns. As the returns are often incorrect, the rank may be too high in cases.

GRADUATED TABLES — THIRD SERIES.

[FOR THE STATE.]

In which all the Towns in the State are numerically arranged ing to the AVERAGE ATTENDANCE *of their Children upon the Schools for the year 1880–81.*

	TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.
1	ASHBY . .	166	199	1·19-88	33	Saugus .	484	438
2	Tyngsboro' .	108	116	1·07-41	34	Carver .	174	157
3	Carlisle .	53	56	1·05-66	35	Randolph .	716	645
4	Gay Head .	35	36	1 02-86	36	Boxborough,	50	45
5	Sunderland .	140	141	1·00-71	37	Charlemont,	114	102
6	Mendon .	196	197	1 00-51	38	Medford .	1,204	1,076
7	Weston .	187	185	·98-93	39	Wellfleet .	345	308
8	Swampscott,	342	336	·98-25	40	Ashfield .	176	157
9	Wareham .	550	540	·98-18	41	Danvers .	1,041	925
10	Edgartown .	172	168	·97-67	42	Orange .	455	404
11	Provincet'n .	828	807	·97-46	43	Townsend .	333	295
12	Holbrook .	361	349	·96-68	44	Bolton .	148	131
13	Heath . .	103	99	·96-11	45	Kingston .	217	192
14	Dunstable .	67	64	·95-52	46	Warwick .	119	105
15	Hubbardst'n,	222	212	·95-50	47	Rockland .	883	779
16	Winchester .	563	536	·95-20	48	Erving .	155	136
17	Cottage City,	98	93	·94-90	49	Shrewsbury,	267	234
18	Plainfield .	58	55	·94-83	50	Malden .	2,082	1,825
19	Belmont .	252	238	·94-44	51	Amherst .	695	608
20	Lunenburg .	144	136	·94-44	52	Merrimac .	384	335
21	Prescott .	88	83	·94-32	53	Truro . .	180	157
22	Wendell .	62	58	·93-55	54	Lenox .	416	361
23	Ashburnham,	306	286	·93-46	55	Bedford .	148	128
24	Leominster .	881	818	·92-85	56	Athol . .	677	584
25	Granby .	133	123	·92-48	57	Ipswich .	551	475
26	Reading .	498	460	·92-37	58	Dana . .	108	93
27	Shutesbury .	102	94	·92-15	59	New Bedford,	4,083	3,505
28	E. Bridgew'r,	477	437	·91-61	60	Harvard .	197	169
29	Royalston .	194	177	·91-24	61	Barnstable .	666	571
30	Amesbury .	545	495	·90-83	62	Hadley .	378	324
31	Chilmark .	75	68	·90-67	63	Stoughton .	960	822
32	Wakefield .	914	828	·90-59	64	Southwick .	207	177

TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.
verett .	764	651	·85-21	113	Hingham .	696	566	·81-32
Abington,	533	454	·85-18	114	N. Reading,	144	117	·81-25
arion .	168	143	·85-12	115	Conway .	275	223	·81-09
anchester .	259	220	·84-94	116	Greenwich .	116	94	·81-03
isbury .	199	169	84-92	117	Dennis .	571	462	·80-91
atick .	1,665	1,413	·84-86	118	Barre . .	345	279	·80-87
opkinton .	920	780	·84-78	119	Newton .	3,182	2,571	·80-79
alisbury .	677	573	·84-64	120	Otis . .	192	155	·80-73
.Springf'd,	731	618	·84-54	121	Wenham .	155	125	·80-64
lymouth .	1,272	1,075	84-51	122	Worth'gton,	129	104	·80-62
yer . .	393	332	·84-48	123	Mansfield .	498	401	·80-52
lorida .	116	198	·84-48	124	Rehoboth .	312	251	80-45
ee . .	758	640	·84-43	125	Fairhaven .	448	360	·80-35
bington .	632	533	·84-33	126	Enfield .	172	138	·80-23
indsor .	101	85	·84-16	127	Quincy .	1,948	1,562	·80-18
edham .	1,080	908	·84-07	128	Princeton .	166	133	·80-12
reenfield .	710	596	·83-94	129	Brewster .	211	169	·80-09
eymouth .	2,028	1,700	·83-83	130	Mattapoisett,	205	164	·80-00
akham .	135	113	·83-70	131	Petersham .	170	136	·80-00
evere .	401	335	83-54	132	Charlton .	299	239	·79-93
rookfield .	485	404	83-30	133	Northboro' .	249	199	79-92
everett .	119	99	83-20	134	Gill . .	129	103	·79-84
cton . .	297	247	·83-17	135	Hawley .	124	99	·79-84
ontgomery,	65	54	83-08	136	Orleans .	203	162	·79-80
ahant .	111	92	·82-88	137	Grafton .	810	646	·79-75
terling .	227	188	·82-82	138	New Salem .	132	105	·79-55
ashpee .	64	53	·82-81	139	Upton . .	332	264	·79-52
ardwick .	454	375	·82-60	140	Hyde Park .	1,401	1,114	·79-51
aston .	807	666	·82-53	141	New Ashford,	34	27	·79-41
atertown .	855	704	·82-34	142	Concord .	636	505	·79-40
oburn .	2,229	1,834	·82-28	143	Wrentham .	393	312	·79-39
xbridge .	462	380	·82-25	144	W. Stockb'e,	441	350	·79-37
eerfield .	590	485	·82-20	145	Littleton .	164	130	·79-27
orwood .	441	362	·82-09	146	N'thampton,	2,089	1,656	·79-27
eorgetown,	407	334	·82-06	147	Somerville .	5,054	4,004	·79-22
ram'gham,	1,004	823	·81-97	148	Rowley .	173	137	·79-19
olliston .	576	471	·81-95	149	Melrose .	888	703	·79-17
reetown .	199	163	·81-91	150	Boylston .	158	125	·79-11
udson .	732	599	·81-83	151	Harwich .	646	511	·79-10
rlington .	814	666	·81-82	152	Shirley .	195	154	·78-97
ilmington,	148	121	·81-76	153	Chelsea .	3,648	2,877	·78-86
estfield .	1,334	1,090	·81-71	154	Middleboro',	869	681	·78-71
inthrop .	153	125	·81-70	155	S. Hadley .	709	558	·78-70
olrain .	300	245	·81-67	156	Gloucester .	4,008	3,154	·78-69
sex . .	289	236	·81-66	157	Wayland .	368	289	·78-53
haron .	216	176	·81-48	158	Chesterfield,	135	106	·78-52
idgewat'r,	652	532	·81-47	159	Brookline .	1,303	1,023	·78-51
ilford .	1,894	1,542	·81-41	160	Templeton .	542	425	·78-41

	TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town	Average attendance upon
161	Stoneham .	887	695	·78–35	209	Seekonk .	208	1
162	Agawam .	346	271	·78-32	210	Taunton .	3,464	2,5
163	Medway .	746	584	·78-28	211	Stow . .	198	1
164	Bellingham .	215	168	·78-14	212	Rutland .	229	1
165	Hinsdale .	425	332	·78-12	213	Dudley .	603	4
166	Brockton .	2,267	1,769	·78–03	214	Monson .	589	4
167	W.Bridgew'r,	314	245	·78–02	215	Blackstone .	958	7
168	Sandwich .	663	517	·77-98	216	Westboro' .	837	6
169	Chelmsford .	476	371	·77–94	217	Franklin .	642	4
170	Boston .	57703	44885	·77-72	218	Walpole .	369	2
171	Leicester .	554	427	·77-71	219	Swanzey .	220	1
172	Sudbury .	183	142	·77-60	220	Peru . .	73	
173	N'wBraintree	116	90	·77-59	221	Tewksbury .	199	1
174	Marlborough,	2,121	1,645	·77–56	222	Bradford .	426	3
175	Lancaster .	279	216	·77-42	223	Sturbridge .	376	2
176	Braintree .	669	517	·77–28	224	Lexington .	420	3
177	Longmead'w,	241	186	·77-18	225	Russell .	140	1
178	Marblehead .	1,407	1,086	·77-18	226	N.Brookfield	799	5
179	Waltham .	2,146	1,653	·77–02	227	Granville .	250	1
180	Huntington .	191	147	·76-96	228	Monroe .	52	
181	Methuen .	667	513	·76-91	229	Cohasset .	412	3
182	Middleton .	159	122	·76-73	230	Williamsb'g,	404	2
183	Belchertown,	470	360	·76-60	231	W Brookfield	337	2
184	Lincoln .	149	114	·76-51	232	Attleboro' .	1,866	1,3
185	Andover .	88.	676	·76–47	233	Hatfield .	305	2
186	Beverly .	1,441	1,102	·76–47	234	Canton .	939	6
187	Dighton .	305	232	·76-07	235	Hanover .	330	2
188	Lynn . .	6,229	4,730	·75-93	236	Burlington .	124	1
189	Somerset .	389	295	·75-84	237	Falmouth .	386	2
190	Yarmouth .	355	269	·75-77	238	Marshfield .	247	1
191	Phillipston .	119	90	·75-63	239	Springfield .	5,865	4,2
192	S. Scituate .	316	239	·75-63	240	Billerica .	315	2
193	Fitchburg .	2,344	1,771	·75-55	241	Gardner .	839	6
194	Milton .	551	416	·75-50	242	Hancock .	94	
195	Hull . .	53	40	·75-47	243	Middlefield .	155	1
196	Shelburne .	265	200	·75-47	244	Duxbury .	370	2
197	Peabody .	1,714	1,293	·75–44	245	Sandisfield .	206	1
198	Westford .	362	273	·75–41	246	Groton .	324	2
199	Dracut .	268	202	·75–37	247	Westport .	535	3
200	Bernardston,	158	119	·75–32	248	Oxford .	495	3
201	Northfield .	259	195	·75-29	249	Southampton	200	1
202	Webster .	939	707	·75–29	250	Blandford .	214	1
203	Ashland .	448	337	·75–22	251	Foxborough,	521	3
204	Medfield .	201	151	·75-12	252	Haverhill .	3,500	2,4
205	W.Newbury,	341	256	·75-07	253	Scituate .	525	3
206	Winchendon,	682	512	·75–07	254	Southboro' .	348	2
207	Maynard .	164	130	·75-06	255	Needham .	885	6
208	Norfolk .	128	96	·75-00	256	Halifax .	82	

TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.
axton	116	82	·70–69	302	Pepperell	372	237	·63–71
ouglas	412	291	·70–63	303	Chester	275	175	·63–63
roveland	432	305	·70–60	304	Hampden	176	112	·63–63
outhbridge,	1,279	902	·70–52	305	Plympton	118	75	·63–56
ambridge	9,390	6,614	·70–44	306	Sherborn	155	98	·63–23
ynnfield	108	76	·70–37	307	Whately	211	133	·63–03
ittsfield	2,521	1,774	·70–37	308	Dover	100	63	·63–00
almer	1,096	767	·70–16	309	Eastham	140	88	·62–86
. Andover	588	412	70–07	310	Leyden	115	72	·62–61
orcester	10988	7,697	·70–05	311	Ware	995	623	·62–61
asthampt'n,	851	596	70–04	312	Alford	61	40	·62–50
ewbury	279	195	·69–89	313	Montague	1,145	707	·61–75
ockport	792	553	·69–82	314	Monterey	120	74	·61–67
dams	1,163	811	·69–73	315	Pembroke	268	165	·61–57
illbury	966	671	·69–46	316	Becket	217	133	·61–29
aynham	326	225	·69–02	317	Hanson	246	150	·60–98
olland	87	60	·68–97	318	Savoy	153	93	·60–78
estminster	295	203	·68–81	319	Topsfield	172	104	·60–47
owe	96	66	·68–75	320	W'thampton	131	79	·60–31
ilbraham	262	180	·68–70	321	Boxford	135	81	·60–00
pencer	1,492	1,022	·68–50	322	Tyringham	120	72	·60–00
cushnet	206	141	·68–45	323	Fall River	9,763	5,845	·59–87
heshire	359	295	·68–24	324	Warren	861	514	·59–70
ummingt'n,	185	126	·68–11	325	Newburyp't,	2,486	1,475	·59–33
tockbridge,	376	256	·68–09	326	N. Marlboro'	395	233	·58–99
hatham	417	283	·67–87	327	W Boylston,	614	356	·57–98
. Adams	2,168	1,479	·67–76	328	Ludlow	330	189	·57–27
uburn	229	155	·67–69	329	Salem	4,862	2,784	·57–26
ochester	207	140	·67–63	330	Goshen	71	42	·56–76
linton	1,671	1,127	·67–44	331	Pelham	122	69	·56–56
uckland	352	237	·67–33	332	Washington,	128	72	·56–25
orthbridge,	850	572	·67–29	333	Hamilton	115	64	·55–65
t. Barr'gton	879	591	67–24	334	Wales	188	104	·55–32
olden	485	326	·67–22	335	Lakeville	220	120	·54–55
anesboro'	275	184	·66–91	336	Brimfield	213	113	·53–05
antucket	560	373	·66–61	337	Richmond	268	137	·51–12
heffield	457	303	·66–30	338	Clarksburg	158	80	·50–63
illiamst'n,	669	443	66–22	339	Mt. Wash'n,	31	15	·49–03
alton	385	253	·65–71	340	Sutton	723	348	·48–13
erlin	191	125	·65–45	341	Norton	299	140	·46–82
owell	9,121	5,961	·65–35	342	Gosnold	23	10	·43–48
erkley	150	98	·65–33	343	Chicopee	2,186	923	·42–22
awrence	6,865	4,480	65–26	344	Holyoke	4,267	1,613	·37–80
olland	63	41	·65–08	345	Egremont	249	89	·35–74
artmouth	506	329	·65–02	346	Wellesley *	–	–	–

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* Returns included with Needham.

GRADUATED TABLES — THIRD SERIES.

[COUNTY TABLES.]

In which all the Towns in the respective Counties in the St
numerically arranged according to the AVERAGE ATTEND
their Children upon the Public Schools for the year 1879–8

[For an explanation of the principles on which these Tables are constructed, see *ant*

BARNSTABLE COUNTY.

	TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.
1	**PROVINCETOWN** .	828	807	·97–46	8	Orleans .	203	16
2	Wellfleet .	345	308	89–28	9	Harwich .	646	51
3	Truro . .	180	157	·87–22	10	Sandwich .	663	51
4	Barnstable .	666	571	85–74	11	Yarmouth .	355	26
5	Mashpee .	64	53	·82–81	12	Falmouth .	386	28
6	Dennis .	571	462	·80–91	13	Chatham .	417	28
7	Brewster .	211	169	·80–09	14	Eastham .	140	8

BERKSHIRE COUNTY.

	TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.
1	**LENOX** . .	416	361	·86–78	17	GtBarringt'n	879	59
2	Florida .	116	98	·84–48	18	Lanesboro' .	275	18
3	Lee . .	758	640	·84–43	19	Sheffield .	457	30
4	Windsor .	101	85	·84–16	20	Williamst'n,	669	44
5	Otis . .	192	155	·80–73	21	Dalton .	385	25
6	NewAshford,	34	27	·79–41	22	Alford .	64	4
7	W. Stockb'e,	441	350	·79–37	23	Monterey .	120	7
8	Hinsdale .	425	332	·78–12	24	Becket .	217	13
9	Peru . .	73	54	·73–97	25	Savoy . .	153	9
10	Hancock .	94	67	·72–34	26	Tyringham .	120	7
11	Sandisfield .	206	148	·71–84	27	N. Marlboro'	395	23
12	Pittsfield .	2,521	1,774	·70–37	28	Washington,	128	7
13	Adams .	1,163	811	·69–73	29	Richmond .	268	13
14	Cheshire .	359	295	·68–24	30	Clarksburg .	158	8
15	Stockbridge,	376	256	·68–09	31	Mt. Wash'ton	31	1
16	N. Adams .	2,168	1,479	·67–76	32	Egremont .	249	8

BRISTOL COUNTY.

TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.
BEDFORD .	4,083	3,505	·85–84	11	Swanzey .	220	163	·74–09
ston .	807	666	·82–53	12	Attleboro' .	1,866	1,359	·72–83
etown .	199	163	·81–91	13	Westport .	535	385	·71–59
nsfield .	498	401	·80–52	14	Raynham .	326	225	·69–02
hoboth .	312	251	·80–45	15	Acushnet .	206	141	·68–45
irhaven .	448	360	·80–35	16	Berkley .	150	98	·65–33
ghton .	305	232	·76–07	17	Dartmouth .	506	329	·65–02
nerset .	389	295	·75–84	18	Fall River .	9,763	5,845	·59–87
konk .	208	156	·75–00	19	Norton .	299	140	·46–82
ntou .	3,464	2,594	·74–88					

DUKES COUNTY.

HEAD .	35	36	1·02-86	4	Chilmark .	75	68	·90–67
gartown .	172	168	·97–67	5	Tisbury .	199	169	·84-92
ttage City,	98	93	·94–90	6	Gosnold .	23	10	·43–48

ESSEX COUNTY.

MPSCOTT .	342	336	·98–25	19	Beverly .	1,441	1,102	·76–47
nesbury .	545	495	·90–83	20	Lynn . .	6,229	4,730	·75–93
ugus .	484	438	·90–50	21	Peabody .	1,714	1,293	·75–44
nvers .	1,041	925	·88–86	22	W.Newbury,	341	256	·75–07
rrimac .	384	335	·87–24	23	Bradford .	426	314	·73–71
swich .	551	475	·86–21	24	Haverhill .	3,500	2,492	·71–20
nchester .	259	220	·84–94	25	Groveland .	432	305	·70–60
isbury .	677	573	·84–64	26	Lynnfield .	108	76	·70–37
hant .	111	92	·82–88	27	N.Andover .	588	412	·70–07
orgetown,	407	334	·82–06	28	Newbury .	279	195	·69–89
sex . .	289	236	·81–66	29	Rockport .	792	553	·69–82
nham .	155	125	·80–64	30	Lawrence .	6,865	4,480	·65–26
wley .	173	137	·79–19	31	Topsfield .	172	104	·60–47
ucester .	4,008	3,154	·78–69	32	Boxford .	135	81	·60–60
rblehead .	1,407	1,086	·77–18	33	Newburyp't,	2,486	1,475	·59–33
thuen .	667	513	·76–91	34	Salem . .	4,862	2,784	·57–26
dleton .	159	122	·76–73	35	Hamilton .	115	64	·55–65
lover .	884	676	·76–47					

FRANKLIN COUNTY.

	TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School
1	**SUNDERLAND** .	140	141	1·00-71	14	Conway .	275	22
2	Heath . .	103	99	·96-11	15	Gill . .	129	10
3	Wendell .	62	58	·93-55	16	Hawley .	124	9
4	Shutesbury .	102	94	·92-15	17	New Salem .	132	10
5	Charlemont.	114	102	·89-47	18	Shelburne .	265	20
6	Ashfield .	176	157	·89-20	19	Bernardston,	158	11
7	Orange .	455	404	·88-79	20	Northfield .	259	19
8	Warwick .	119	105	·88-24	21	Monroe .	52	3
9	Erving .	155	136	·87-74	22	Rowe . .	96	6
10	Greenfield .	710	596	·83-94	23	Buckland .	352	23
11	Leverett .	119	99	·83-20	24	Whately .	211	13
12	Deerfield .	590	485	·82-20	25	Leyden .	115	7
13	Colrain .	300	245	·81-67	26	Montague .	1,145	70

HAMPDEN COUNTY.

1	**SOUTHWICK** .	207	177	·85-51	12	Palmer .	1,096	76
2	W. Springf'd	731	618	·84-54	13	Tolland .	87	6
3	Montgomery,	65	54	·83-08	14	Wilbraham .	262	18
4	Westfield .	1,334	1,090	·81-71	15	Holland .	63	4
5	Agawam .	346	271	·78-32	16	Chester .	275	17
6	Longmead'w,	241	186	·77-18	17	Hampden .	176	11
7	Monson .	589	438	·74-36	18	Ludlow .	330	18
8	Russell .	140	103	·73-57	19	Wales . .	188	10
9	Granville .	250	183	·73-20	20	Brimfield .	213	11
10	Springfield .	5,865	4,250	·72-46	21	Chicopee .	2,186	92
11	Blandford .	214	153	·71-49	22	Holyoke .	4,267	1,61

HAMPSHIRE COUNTY.

1	**PLAINFIELD** .	58	55	·94-83	13	Belchertown,	470	36
2	Prescott .	88	83	·94-32	14	Williamsb'g,	404	29
3	Granby .	133	123	·92-48	15	Hatfield .	305	22
4	Amherst .	695	608	·87-48	16	Middlefield .	155	11
5	Hadley .	378	324	·85-71	17	Southampt'n,	200	14
6	Greenwich .	116	94	·81-03	18	Easthampt'n,	851	59
7	Worthington,	129	104	·80-62	19	Cummington,	185	12
8	Enfield .	172	138	·80-23	20	Ware . .	995	62
9	Northampt'n,	2,089	1,656	79-27	21	Westhamp'n,	131	7
10	So. Hadley .	709	558	·78-70	22	Goshen .	74	4
11	Chesterfield,	135	106	·78-52	23	Pelham .	122	6
12	Huntington,	191	147	·76-96				

MIDDLESEX COUNTY.

WNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.
. .	166	199	1·19-88	28	Newton .	3,182	2,571	·80-79
sboro' .	108	116	1·07-41	29	Concord .	636	505	·79-40
sle .	53	56	1·05-66	30	Littleton .	164	130	·79-27
on .	187	185	·98-93	31	Somerville .	5,054	4,004	·79-22
table .	67	64	·95-52	32	Melrose .	888	703	·79-17
hester .	563	536	·95-20	33	Shirley .	195	154	·78-97
ont .	252	238	·94-44	34	Wayland .	368	289	·78-53
ing .	498	460	·92-37	35	Stoneham .	887	695	·78-35
efield .	914	828	·90-59	36	Chelmsford .	476	371	·77-94
orough,	50	45	·90-00	37	Sudbury .	183	142	·77-60
ord .	1,204	1,076	·89-37	38	Marlboro' .	2,121	1,645	·77-56
nsend .	333	295	·88-59	39	Waltham .	2,146	1,653	·77-02
en .	2,082	1,825	·87-61	40	Lincoln .	149	114	·76-51
ord .	148	128	·86-49	41	Westford .	362	273	·75-41
ett .	764	651	·85-21	42	Dracut .	268	202	·75-37
k .	1,665	1,413	·84-86	43	Ashland .	448	337	·75-22
inton .	920	780	·84-78	44	Maynard .	164	130	·75-06
. .	393	332	·84-48	45	Stow . .	198	148	·74-75
n . .	297	247	·83-17	46	Tewksbury .	199	147	·73-87
ertown .	855	704	·82-34	47	Lexington .	420	309	·73-57
urn .	2,229	1,834	·82-28	48	Burlington .	124	90	·72-60
ingh'm,	1,004	823	·81-97	49	Billerica .	315	228	·72-38
iston .	576	471	·81-95	50	Groton .	324	232	·71-60
son .	732	599	·81-83	51	Cambridge .	9,390	6,614	·70-44
gton .	814	666	·81-82	52	Lowell .	9,121	5,961	·65-35
ington,	148	121	·81-76	53	Pepperell .	372	237	·63-71
eading,	144	117	·81-25	54	Sherborn .	155	98	·63-22

NANTUCKET COUNTY.

. . . .	560	373	·66-61

NORFOLK COUNTY.

ook .	361	349	·96-68	7	Sharon .	216	176	·81-48
dolph .	716	645	·90-08	8	Quincy .	1,948	1,562	·80-18
ghton .	960	822	·85-63	9	Hyde Park	1,401	1,114	·79-51
ham .	1,080	908	·84-07	10	Wrentham .	393	312	·79-39
mouth .	2,028	1,700	·83-83	11	Brookline .	1,303	1,023	·78-51
wood .	441	362	·82-09	12	Medway .	746	584	·78-28

NORFOLK COUNTY — CONCLUDED.

	TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of childr n between 5 and 15 years of age in each town.	Average attendance upon
13	Bellingham .	215	168	·78-14	20	Cohasset .	412	3
14	Braintree .	669	517	·77-28	21	Canton .	939	6
15	Milton .	551	416	·75-50	22	Foxborough,	521	3
16	Medfield .	201	151	·75-12	23	Needham .	885	6
17	Norfolk .	128	96	·75-00	24	Dover .	100	
18	Franklin .	642	477	·74-30	25	Wellesley .	–	
19	Walpole .	369	274	·74-25				

PLYMOUTH COUNTY.

1	**WAREHAM** .	550	540	·98-18	15	W. Bridgew'r	314	2
2	E. Bridgew'r.	477	437	·91-61	16	S. Scituate .	316	2
3	Carver .	174	157	·90-23	17	Hull . .	53	
4	Kingston .	217	192	·88-48	18	Hanover .	330	2
5	Rockland .	883	779	·88-22	19	Marshfield .	247	1
6	S Abington .	533	454	·85-18	20	Duxbury .	370	2
7	Marion .	168	143	·85-12	21	Scituate .	525	3
8	Plymouth .	1,272	1,075	·84-51	22	Halifax .	82	
9	Abington .	632	533	·84-33	23	Rochester .	207	1
10	Bridgewater,	653	532	·81-47	24	Plympton .	118	
11	Hingham .	696	566	·81-32	25	Pembroke .	268	1
12	Mattapoisett,	205	164	·80-00	26	Hanson .	246	1
13	Middleboro',	869	684	78-71	27	Lakeville .	220	1
14	Brockton .	2,267	1,769	·78-03				

SUFFOLK COUNTY.

1	**REVERE** . .	401	335	·83-54	3	Chelsea .	3,648	2,8
2	Winthrop .	153	125	·81-70	4	Boston .	57703	448

WORCESTER COUNTY.

1	**MENDON** . .	196	197	1·00-51	6	Royalston .	194	1
2	Hubbardst'n,	222	212	·95-50	7	Bolton .	148	1
3	Lunenburg .	144	136	·94-44	8	Shrewsbury.	267	2
4	Ashburnham,	306	286	·93-46	9	Athol . .	677	5
5	Leominster .	881	818	·92-85	10	Dana . .	108	

WORCESTER COUNTY — Concluded.

WNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.		TOWNS.	No. of children between 5 and 15 years of age in each town.	Average attendance upon School.	Ratio of attendance to the whole No. of children between 5 and 15, expressed in decimals.
ard .	197	169	·85–80	35	Dudley .	603	449	·74–46
ıam .	135	113	·83-70	36	Blackstone .	958	712	·74·32
kfield .	485	404	·83-30	37	Westboro' .	837	622	·74–31
ing .	227	188	·82–82	38	Sturbridge .	376	277	·73-67
lwick .	454	375	·82-60	39	N Brookfield,	799	587	·73-47
ridge .	462	380	·82-25	40	W. Brookfield	337	246	·72-99
ord .	1,894	1,542	·81-41	41	Gardner .	839	607	·72-35
e . .	345	279	·80-67	42	Oxford .	495	354	·71-52
ceton .	166	133	·80-12	43	Southboro' .	348	247	·70-98
rsham .	170	136	·80-00	44	Paxton .	116	82	·70-69
rlton .	299	239	·79-93	45	Douglas .	412	291	·70-63
thboro' .	249	199	·79-92	46	Southbridge,	1,279	902	·70-52
fton .	810	646	·79–75	47	Worcester .	10988	7,697	·70-05
on . .	332	264	79-52	48	Millbury .	966	671	·69-46
lston .	158	125	·79-11	49	Westminster,	295	203	·68-81
npleton .	542	425	·78-41	50	Spencer .	1,492	1,022	·68-50
ester .	554	427	·77-71	51	Auburn .	229	155	·67-69
Braintree,	116	90	·77-59	52	Clinton .	1,671	1,127	67–44
caster .	279	216	·77-42	53	Northbridge,	850	572	·67-29
lipston .	119	90	·75-63	54	Holden .	485	326	67-22
hburg .	2,344	1,771	·75-55	55	Berlin .	191	125	·65–45
oster .	939	707	·75-29	56	Warren .	861	514	·59-70
chendon	682	512	·75-07	57	W. Boylston,	614	356	·57-98
land .	229	171	·74–67	58	Sutton .	723	348	·48-13

TABLE *in which all the Counties are numerically arranged, ing to the* AVERAGE ATTENDANCE *of their Children upon th Schools for the year 1880–81.*

1879-80.	1880-81.	COUNTIES.
1	1	DUKES . . . .
2	2	Barnstable . . . .
5	3	Plymouth . . . .
4	4	Norfolk . . . .
9	5	Suffolk . . . .
3	6	Franklin . . . .
6	7	Middlesex . . . .
8	8	Hampshire . . . .
7	9	Worcester . . . .
11	10	Essex . . . .
12	11	Bristol . . . .
10	12	Berkshire . . . .
13	13	Nantucket . . . .
14	14	Hampden . . . .

AVERAGE ATTENDANCE FOR THE STATE.

Number of children between 5 and 15 years of age in the State .
Average attendance . . . .
Ratio of attendance to the whole number between 5 and 15 years of age, expressed in decimals . . . .

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  - Statistics of
  - Work of graduates
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- Free text-books at Fall River

- German industrial schools. (*See* Hohenheim and Reutlingen.)

- Hampden County, examination of schools in
- Hohenheim Royal Agricultural and Forestry Academy
- Horace Mann School for Deaf-Mutes
- Hubbard, E. A., report as agent of the Board
  - Examination of schools in Franklin and Hampden Counties
  - Examinations
  - Grounds and out-buildings
  - Schoolhouses
  - Statistics
  - Teachers

- Industrial art education, annual report of
- Industrial education. (*See* Manual Element in Education.)
- Institutes, teachers' report of
  - Reference to by Board
- Institute of Technology at Boston

- Komotau, Bohemia, Royal Mechanic Art School at

- Laboratory, new, at Bridgewater

- Maine State College, mechanic art instruction at
- Manual element in education, by J. D. Runkle
  - Department of mechanic arts, Purdue University
  - École Communale, Paris
  - École d'Apprentis
  - École Municipale d'Apprentis
  - Imperial Technical School, Moscow
  - Institute of Technology, Boston
  - Manual Training School, Washington University
  - Mechanic art instruction in Maine State College
  - Pomological and Horticultural School, Reutlingen
  - Royal Agricultural School, Hohenheim
  - Royal Mechanic Art School, Komotau
- Manual Training School, Washington University, St. Louis
- Massachusetts Institute of Technology
  - School of Mechanic Arts at
- Massachusetts school fund
- McLellan, J. A., statement of supervision in Ontario
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  - Department of, Purdue University, Lafayette, Ind.
- Moral instruction
- Morals and manners
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  - Morals and manners
  - Necessity of right early training
  - Order of teaching
  - Physical training
  - Requisites of a good teacher
  - Schoolhouses, construction of
  - School fund
  - School legislation
  - School returns, analysis of
  - Summary of statistics
  - Superintendency
  - Teachers' institutes
  - Women as school committees
- Smith, Walter, report on art education
  - Evening drawing classes for artisans
  - Normal Art School
  - Normal schools
  - State exhibition of drawings
- Superintendency, necessity for
- Supervision, district
  - In Ontario

- Teacher, requisites of a good
- Teaching, means of
  - Order of
- Technical education. (*See* Manual Element in Education.)
- Training, necessity of right early
- Training school, model, at Framingham
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  - General conclusions
  - Schoolhouses
  - Studies and results
- Washington University, Manual Training School at
- Westfield Normal School, report of visitors of
  - Change of teachers in
  - Repairs and improvements
  - Statistics of
  - Work of graduates of
- Women as school committees
- Worcester Normal School, report of visitors of
  - Apprenticeship system in
  - Statistics of
  - Work of graduates
- Wurttemburg. (*See* Hohenheim and Reutlingen.)

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BLIC DOCUMENT. No. 3.

REPORT OF THE LIBRARIAN

OF THE

TATE LIBRARY,

FOR THE

YEAR ENDING SEPTEMBER 30, 1881,

AND

SECOND ANNUAL SUPPLEMENT

TO THE GENERAL CATALOGUE.

BOSTON:
Rand, Avery, & Co., Printers to the Commonwealth,
117 Franklin Street.
1882.

TRUSTEES OF THE STATE LIBRARY.

JOHN C. ROPES	BOSTON.
ARTHUR LINCOLN	HINGHAM.
EDWARD E. HALE	BOSTON.

JOINT STANDING COMMITTEE OF THE LEGISLATURE, 1881.

MESSRS.	WILLIAM ABBOTT, DOUGLAS, DANIEL B. INGALLS, CLINTON, JOSEPH H. ROOT, MONTAGUE,	*Of the Senate.*
MESSRS.	EDWARD D. HAYDEN, WOBURN, EDWARD I. THOMAS, BROOKLINE, CHARLES F. SWIFT, YARMOUTH, SAMUEL HOAR, CONCORD, HARVEY N. SHEPARD, BOSTON, HENRY H. SPRAGUE, BOSTON, JOHN W. P. BUCK, CLARKSBURG, WILLIAM H. BURPEE, STERLING,	*Of the House.*

OFFICERS OF THE LIBRARY.

JOHN W. DICKINSON	LIBRARIAN *ex officio.*
C. B. TILLINGHAST	ACTING LIBRARIAN.
C. R. JACKSON	ASSISTANT.
E. M. SAWYER	ASSISTANT.

Commonwealth of Massachusetts.

LIBRARIAN'S REPORT.

To the Honorable Legislature of Massachusetts.

THE librarian of the State Library, in accordance with sect. 8 of chap. 5 of the General Statutes, submits the following report for the year ending Sept. 30, 1881:—

ADDITIONS.

Number of Volumes added to the Library from Oct. 1, 1880, to Sept. 30, 1881.

By purchase	938
domestic exchanges	484
foreign exchanges	85
donation	563
officers of government	148
	2,218

Pamphlets.

By purchase	231
domestic exchanges	332
foreign exchanges	17
donation	1,919
officers of government	103
	2,602

Maps	70

FINANCIAL STATEMENT.

Dr. Commonwealth in Account with Trustees of the State Library. Cr.

1880.	Paid Rand, Avery, & Co., for printing	$3 75	**1880.**	Cash drawn from appropriation for 1880	$435 25
	Doane & Greenough, for stationery	14 80			
	S. E. Brown, for indexing resolves	416 70			
		$435 25			$435 25
1881. Jan. 1 to Sept. 30.	Expended for periodicals	$168 70	**1881.**	Regular annual appropriation	$2,300 00
	expressage	80 62		Appropriation for contingent expenses	800 00
	printing	58 32		Appropriation for session laws and English reports	1,000 00
	stationery	89 75			
	newspaper carrier	3 00			
	indexing	23 30			
	rubber library stamp	7 00			
	electric lighting apparatus	70 00			
	electric bell	5 00			
	changing shelves	16 76			
	binding	461 62			
	messenger service	303 65			
	Paid Little, Brown, & Co., for books	844 96			
	William B. Clarke	455 50			
	George E. Littlefield	145 42			
	Carroll D. Wright	120 00			
	N. J. Bartlett & Co.	105 58			
	J. C. Hazen for town-views	91 00			

Sullivan Brothers & Libbie	33 50		
J. L. Parker, for atlases	25 00		
W. S. Edmands, for books	25 00		
G. M. Hopkins & Co., for atlases	24 00		
C. N. Thomas, for atlas	23 00		
Charles De F. Burns, for books	20 48		
J. R. Osgood & Co , for books	17 00		
H. K. Oliver, for books	15 00		
W. P. Lunt, for books	15 00		
John McFarlane, for books	12 50		
A. C. Armstrong & Co., for books	11 50		
E. S. Davis	11 50		
Collection of town-reports	9 50		
S. P. Mayberry, for maps	9 00		
Robert Clarke & Co., for books	11 25		
Lockwood, Brooks, & Co.	8 09		
Southern Historical Society	8 00		
A. L. Bancroft & Co.	7 50		
S. S. Rider	6 35		
F. B. Patterson	5 50		
Mrs. H. H. Robinson	5 00		
Prince Society	5 00		
Congregational Library	4 50		
C. N. Caspar	3 66		
W. C. Sharpe	4 00		
J. F. Hunnewell	3 00		
sundry other bills for books	119 20		
Unexpended balance	445 93		
	$4,100 00		$4,100 00

By the foregoing account, which embraces the librar
from Oct. 1, 1880, to Sept. 30, 1881, inclusive, it will b
that the receipts and expenditures may be aggrega
follows: —

RECEIPTS.

Drawn from appropriations for 1880	
Drawn from appropriations for 1881	3
	$4

EXPENDITURES.

Books, pamphlets, and maps	$2
Binding	
Periodicals	
Expressage	
Stationery	
Printing	
Indexing resolves	
Incidentals	
Messenger service	
Electric lighting and bell	
	$4

There remained in the treasury Sept. 30, 1881, an
pended balance of the several appropriations made on ac
of the library of $445.93.

GROWTH OF THE LIBRARY.

The following table of comparisons will show at a
the annual additions that have been made to the l
during the past ten years, and the general classificat
sources from which they were received.

	1872.	1873.		1875.	1876.	1877.	1878.	1879.	1880.	1881.
By purchase	484	587	583	683	419	397	432	431	1,285	938
domestic exchange	351	319	612	371	385	421	420	334	350	484
foreign exchange	46	42	41	40	71	73	81	87	78	85
donation	119	155	178	174	124	151	107	222	268	563
officers of government . . .	143	119	104	277	114	159	116	137	86	148
Totals	1,143	1,222	1,518	1,545	1,113	1,201	1,156	1,211	2,067	2,218

PAMPHLETS.

By purchase	**93**	**93**	**23**	**61**	**23**	**43**	**37**	**1,782**	**129**	**231**
domestic exchange	**8**	**45**	**31**	**32**	**122**	**165**	**51**	**147**	**39**	**332**
foreign exchange	**2**	**4**	**9**	**18**	**9**	**–**	**6**	**11**	**24**	**17**
donation	**209**	**263**	**102**	**332**	**356**	**433**	**226**	**704**	**463**	**1,919**
officers of government	**69**	**70**	**53**	**49**	**52**	**61**	**56**	**46**	**40**	**103**
Totals	**381**	**475**	**218**	**492**	**562**	**702**	**376**	**2,690**	**695**	**2,602**

Change of Trustees.

During the year an entire change has taken plac
Board of Trustees. Mr. E. P. Whipple declined
pointment, he having been a member of the Boa
Sept. 10, 1863. The Hon. George O. Shattuck and
J. M. Manning were re-appointed, but absence in
prevented their acceptance. They had been membe
Board since Nov. 22, 1865. To each of the retiri
bers the Commonwealth is indebted for valuable an
ompensed service.

John C. Ropes, Esq., succeeds Mr. Shattuck;
Lincoln, Esq., is the successor of Dr. Manning; and
Everett Hale, D.D., succeeds Mr. Whipple.

Session Laws and English Reports.

The special appropriation has afforded the means
addition of many scarce and valuable volumes whi
been long needed to perfect our sets of laws and rep

Additions have been made during the year to t
session laws of Alabama, Connecticut, Delaware,
Georgia, Maryland, Michigan, Minnesota, Mississip
Jersey, New York, Oregon, Pennsylvania, Rhode
South Carolina, Vermont, and Virginia. Especial a
has been paid to the search for these laws, for th
that the State Library contains the only collection
State, — by far the best collection in New Engla
with possibly one or two exceptions, the best in the
The session laws of the Territory of New Mexico ar
the rarest in the country, Chief Justice Prince havin
in the preface to a recent compilation, that "there
ably no civilized community in the world, gove
written statutes, where it was so impossible to obt
session of a copy of the law." Eight years ago th
torial Legislature memorialized Congress that they wer
to obtain a copy for use during its session; and
neither the Governor, Legislature, Chief Justice,
States Attorney, or any territorial official, except th
tary, was in possession of the laws they were exp
administer. During the year the State Library h

nate enough to secure all but three sessions of these
e laws.

'er fifty volumes of English law-reports, needed to com-
our series, have been added to the shelves during the
Through the effort of Mr. Charles C. Soule, during
t to London the past summer, the volumes needed to
lete our set of the House of Lords Reports have been
ed, but they did not reach the library in season to
r upon the catalogue of additions in this report. The
e of Lords being the supreme court of appeal, the high-
dicial tribunal in the realm, it was thought important
t should be the first series completed. Time and gen-
provision by the Legislature will be needed to make
ets of English reports in the library perfect.

The Annual Appropriation.

e annual appropriation for the purchase of books for
ibrary, and for keeping them in proper repair, was fixed,
57, — nearly a quarter of a century ago, — at $2,300.
great increase of publications in all departments of lit-
re unquestionably demonstrates that an amount which
have been considered sufficient for the current needs of
ibrary twenty-five years ago, is entirely too meagre and
quate for the same purpose to-day. An addition of
0 to the annual appropriation would meet pressing
s, and enable the library to take advantage of opportu-
that may offer to supply deficiencies without the neces-
of asking for special appropriations.

Donations.

e library has been enriched by the gift of a large num-
f valuable pamphlets and volumes relating to genealogy,
history, and other topics of interest. It is very desir-
that the library should contain the contributions of the
ns of Massachusetts to the discussion of public affairs,
e local annals of their families and homes; and all con-
tions of this character are gladly received and carefully
rved. Among the additions by gift and exchange will
und a large number of titles that have been contrib-
by historical societies and individuals from different

States, most of which are of permanent value. In
acknowledgment has in all cases been made to the
and their names will appear upon the record of a
"The Boston Daily Journal," "The Boston Daily a
day Herald," "The Woburn Journal," and "The
town News" have been regularly supplied to the
during the year by the publishers; and the bound
will be added to our files. A valuable collection, ex
through several years of "The Massachusetts Weekl
has been given to the library by the Rev. Lucius R
D.D., of Cambridge. The Hon. George F. Hoar h
of great assistance to the library in keeping it suppli
the publications of the general government, and favo
lar in character have been received from Hon. H. L
and Hon. Leopold Morse.

The full catalogue of additions for the year is appe
a form that will be found of use as a catalogue, and
same time show the sources from which the additio
been made.

Respectfully submitted.

JOHN W. DICKINS

Li

State Library, Oct. 14, 1881.

SECOND ANNUAL SUPPLEMENT

TO THE

ENERAL CATALOGUE,

INCLUDING THE

ADDITIONS FOR THE YEAR ENDING SEPT. 30, 1881.

TIONS TO THE STATE LIBRARY FOR THE YEAR ENDING SEPTEMBER 30, 1881.

— The figures in brackets at the end of the titles indicate the sources from which the ere received, thus, [1], received by purchase; [2], by exchange; [3], by donation of individual donors being added); [4], from officers of government.

---

tt, Austin. New cases selected chiefly from decisions of the courts of e state of New York, [1879-80]. Vol. 8. N.Y., 1881. 8°. [1]

tt, Benjamin Vaughan. The year book of jurisprudence for 1880. st., 1880. 8°. [1]

A compend of the most recent statutes, leading cases, and general information upon the gress of the law.

tt, Josiah G. Argument on the petition of C. P. Talbot and others aying for the repeal of the act of 1860 for the removal of the dam across ncord River, at Billerica, March 13, 1862. Bost., 1862. 8°. 60 p. [3, *thor.*]

tt, Simon C. A record of births, marriages and deaths in Worcester, ., Oct. 21, 1813-June 18, 1858. Montpelier, 1858. 16°. 31 p. [1]

gton, *Mass.* Celebration of the 150th anniversary of the incorporation Abington, June 10, 1862; including the oration [by E. P. Dyer], poem J. W. Ward], *etc.* Bost., 1862. 8°. [1]

ctmen's annual report of the receipts and expenditures, *etc.*, March, 5-Feb. 1858, 1858/9. Bost., 1846-59. 8°. [2]

The report for 1845/46 was the first printed; that for 1855/56 contains the taxable valua- n of the town.

, *Mass.* 25th annual report of the school committee, 1861-62. Also, the port of the town clerk, and selectmen's report for the year ending Feb. 1862. Bost., 1862. 8° [2]

ort of the superintendent of the poor farm of the town, April 7, 1858– ril 1, 1859. *n.p.*, 1859. Broadside. [3, *G. E. Littlefield, Boston.*]

uation list of real and personal estates in Acton, 1872, 75. Bost., Acton, 2-75. 8°. [3, *Wm. D. Tuttle, Acton.*]

rth, *N.H.* *See* **Merrill,** J. L.

s, Charles Francis. An address at Amherst, before the members of the cial Union, 7 July, 1875. Camb., 1875. 8°. 30 p. [3, *Author.*]

address before the members of the schools, and the citizens of Quincy, ly 4, 1856. Bost., 1856. 8°. 36 p. [3, *Author.*]

struggle for neutrality in America: address before the New York His- ical Society, Dec. 13, 1870. N.Y., 1871. 8°. 52 p. [3, *Author.*]

s, Charles Francis, *Jr.* The new departure in the common schools of incy, and other papers on educational topics. 6th ed., with additional per. Bost., 1881. 8°. 74 p. [3, *Author.*]

Contents.

The public library and the public schools. — Fiction in public libraries, and educational alogues. — The new departure in the common schools of Quincy. — The development of superintendency.

Adams, Charles Francis, *Jr., continued.*

— State school supervision. Argument in favor of the "ten distri before the legislative committee on education, Mar. 2, 1881. Bo 8°. 14 p. [3, *Author.*]

Adams, Edwin G. An historical discourse in commemoration of t anniversary of the formation of the First Congregational Church pleton. With a survey of the municipal affairs of the town. Bo 8°. [2]

Adams, Herbert Baxter. History of the Thomas Adams and Thom tings families of Amherst, Mass. Amherst, 1880. 16°. 66 p. [3,

Adams, Phinehas. *See* **Dodge, A. P.**

Adams family. *See* **Adams, H. B.**

Adams, *Mass. Special Committee on Education.* Report read at the town meeting, March 8, 1858. [North Adams, 1858.] 8°. 8 p. [3]

Addeman, Joshua M. Reminiscences of two years with the colored Providence, 1880. sm. 4°. 38 p. (**Rhode Island Soldiers and Hist. Soc.** Personal narratives, no. 5, 2d ser.)

Adulteration of food. *See* **United States.** *Congress.*

Advocate of peace. Sept. and Oct., 1851. London Peace Congres 1851. Bost., 1851.] 8°. (**Pm., v. 118.**) [1]

Africa. *See* **Coppinger, W.**; — **Holub, E.**; — **Johnston, (A.) K., Pinto, A. de S.**; — **Thomson, J.**

African colonization. *See* **American Colonization Society;- row, J. L.**

Agriculture. *See* **Caird, J.**; — **Flint, C. L.**; — **Illinois**; — **Ind Iowa**; — **Lawes, J. B.**; — **Maine**; — **Massachusetts**; — **Michi Mongredien, A.**; — **Nantucket**; — **Nebraska**; — **Ohio**; — **Rug B.**; — **Smith, F. W.**; — **United States**; — **Wiscons**

Alabama. *General Assembly.* Acts, 4th annual session, 1822; 1833-[3 81. Cahawba, Tuscaloosa, Montgomery, 1823-81. 3 v. 8°. [1, 2]

— - Journal of the House of Representatives, 1871/2, 73, 75/6-76/ Montgomery, 1872-79. 5 v. 8°. [2]

The journal for 1873 contains the journal of the "Capitol" House of Representa

— - Journal of the Senate, 1871/2, 73, 74/5-76/7. 78/9. Montgomery. 6 v. 8°. [2]

The journal of 1873 contains the journal of the "Capitol" Senate, 1872.

— *Geological Survey.* Report of progress, 1874-80. By E. A. Smit Geologist. Montgomery, 1875-81. 5 v. 8°. [3, *E. A. Smith.*]

— *Superintendent of Education.* Report, 1869, 79-80. L. F. Box, Supe ent. Montgomery, 1870-80. 8°. [2]

— *Supreme Court.* Reports of cases, 1847-48. Vol. 12. J. J. Ormond, Tuscaloosa, 1848. 8°. [1]

— - *Same.* Vol. 62. 1878-79. By T. G. Jones. Montgomery, 1880.

— - *Same.* Vol. 63. 1879. By J. W. Shepherd. Montgomery, 1880.

Alaska. *See* **United States.** *Department of the Interior; — Revenu Service.*

Albany, *N.Y. Board of Public Instruction.* 14th annual report, bany, 1880. 8°. [3]

Albany (County) Penitentiary. 25th, 28th annual report, with acc ing documents, 1873, 76. Albany, 1873-76. 8°. [3]

— Statutes relating to the penitentiary, with forms of commitment, et piled by N. C. Moak. Albany, 1872. 8°. 53 p. [3]

Albany Institute. Manual of the Institute. New ed., 1878. [Alban 16°. 29 p. [3]

Albert Edward, *Prince of Wales.* The New England tour of the Wales. 3d ed. [*Anon.*] Bost., 1860. 8°. 46 p. [3]

rtis, L. M. d'. New Guinea: what I did and what I saw. 2d ed. Bost.,
81. 2 v. 8°. Portrait, map, and illus. [1]

, John Adams. *See* **Cambridge,** ***Mass.*** **First Church and Shepard**
ociety.

ol. *See* **Edmunds, J.; — Pitman, R. C.**

, Joseph. First principles of political economy. Syracuse, [*cop.* 1879].
°. [1]

ch, George. Walpole, [N. H.], as it was and as it is, 1749-1879; with a
story of one hundred and fifty families. Claremont, N.H., 1880. 8°.
rtraits. [1]

ch, P. Emory. The legal and constitutional powers of civil govern-
ent in relation to education. Bost., 1878. 8°. 23 p. [3]

Address before the Massachusetts State Teachers' Association, Dec. 28, 1877.

nder, James. Terminal facilities. The adaptability of that section of
e harbor of Boston situated on the eastern foreshore of East Boston,
lled East Haven, to meet the requirements of ocean commerce. Bost.,
80. f°. 25 p. [3, *Author.*]

he East Haven estate, East Boston. Bost., 1881. 4°. (4) p. [3, *Author.*]

lan of improvement of that section of the harbor of Boston, called
st Haven. Bost., 1881. Broadside. [3, *Author.*]

others. Terminal facilities. The harbor improvement proposed at East
ston. [Bost., 1881.] f°. (2) p. [3, *Author.*]

, John. Select cases [in the Court of King's Bench, 1646-49]. Lond.,
1. f°. [1]

With MS. notes.

laws. *See* **Virginia.** *General Assembly.*

, William. History of the campaign of Gen. T. J. (Stonewall) Jackson
the Shenandoah Valley of Virginia, 1861-62. With maps. Phila., 1880.
[1]

heny City, *Pa.* 26th annual report of the board of controllers and 7th
nual report of the superintendent of public schools, 1880. Pittsburgh,
0. 8°. [3]

, Joseph. Half-century sermon. Order of exercises and commemora-
e discourse at the 50th anniversary of [his] settlement as pastor of the
st Congregational Church and Society in Northborough, Mass. Camb.,
7. 8°. 38 p. [1]

ographical and historical sketches of Northborough, with the early his-
y of Marlborough, Mass. Worcester, 1826. 8°. 66 p. [1]

, Paul. A history of the American revolution. Balt., 1819. 2 v. 8°.

Written for him by John Neal and Mr. Watkins.

Stephen Merrill. The old and new Republican Parties: their origin,
ilitude and progress. Bost., 1880. 12°. [1]

See also **Standish Monument Association.**

W. C. B., *and* **Stinchcomb, W. A.** Resources and wealth of Story
nty, Iowa. Nevada, Iowa, 1880. 8°. 32 p. [3, *Author.*]

ne, Samuel Austin. Prose quotations from Socrates to Macaulay.
th indexes. Phila., 1879. 8°. 764 p. [1]

ach de Gotha. Annuaire diplomatique et statistique, 1881. Gotha,
0]. 32°. Portraits. [1]

ack for the year 1881. By J. Whitaker. Lond., [1880]. 16°. [1]

acs. *See* **American; — Ayer's; — Boston; — British; — Plymouth;**
Public ledger; — **Tribune.**

ouses. *See* **Massachusetts.** *State Almshouse at Tewksbury; — State*
mary and Reform Schools; — State Workhouse at Bridgewater.

ca. *See* **Stevens, H.**

ca, North. *See* **Kidder, F.; — Woodbury, C. L.**

America, South. *See* **Gallenga, A.**; — **United States.** *Bureau*
tion.

American almanac, 1881. Ed. by A. R. Spofford. N.Y., 1881. 12

American Antiquarian Society. Proceedings, semi-annual me
1880; annual meeting, Oct., 1880, [new series, v. 1, no. 1]. Wor
8°. [3]

American Association for the Advancement of Science.
count of some of the scientific institutions of Boston and vici
1880. 8°. 27 p. [3]

— Constitution, list of meetings, committees and members, 29th m
Salem, 1880. 8°. [3]

— Proceedings, 28th-29th meeting, Saratoga Springs, 1879-80. Sal
2 v. in 3. 8°. [1]

American Association of Instructors of the Blind. Proc
convention of American Instructors of the Blind, N.Y., 1853;
of the American Association, *etc.*, Batavia, 1874; 6th bien
tion, Louisville, 1880. Batavia, Louisville, 1875-80. 8°. [3,
Boston.]

**American Asylum at Hartford for the Education and Ins
the Deaf and Dumb.** 65th annual report. Hartford, 1881.

American Bankers' Association. Proceedings of the convent
N.Y., [1875]-80. 6 v. 8°. [3, *Hamilton A. Hill, Boston, and othe*

The "Proceedings" for 1877 and 1878 are of the 2d edition.

American Bar Association. Report of the 3d annual meetin
Springs, Aug. 18-20, 1880. Phila., 1880. 8°. [3]

Contains amongst others, papers on the Sunday laws, by H. E. Young, and
between the states, by H. D. Hyde.

American biographical history of eminent and self-made men.
trait illus. Michigan volume. [Ed. by F. A. Barnard.] C
2 v. 4°. [1]

American Board of Commissioners for Foreign Missions
annual report, 1878-80. Bost., 1878-80. 3 v. 8°. [3]

— Annual survey of the work of the Board. By N. G. Clark.
8°. 11 p. [3]

American catalogue, under the direction of F. Leypoldt. Subje
books in print and for sale, July 1, 1876. Compiled by L. E J
1881. 4°. [1]

American College and Education Society. 5th-6th annual
80. Bost., [1879-80]. 8°. [3]

American college directory and universal catalogue. Vol. 3
Louis, [1881]. 8°. [3]

American Colonization Society. 64th annual report, 1881.
8°. [3]

American Congregational Association. 26th-28th annual rep
Bost., 1879-81. 8°. [3]

American Congregational Union. Manual, 1876-77, 79-80. N
8°. [3]

American Convention of Cattle Commissioners. Proceedi
bates, 1868. Springfield, 1869. 8°. [3]

American Institute of Instruction. Lectures read before th
1880. With the journal of proceedings. Bost., 1880. 12°. [3]

Contents.

1880. Proceedings. — **Northrop, B. G.** The Quincy method. — **Warr**
spiritual side of the high-school question. — **Metcalf, R. C.** The public libr
iary to the public schools. — **Cushing, T.** Private schools. — **Sears, B.**
educational progress. **Philbrick, J. D.** Coeducation of the sexes. — **St**
The language element in education.

American Instructors of the Deaf and Dumb. Proceedings,
tion, Columbus, Aug. 17-22, 1878. Columbus, 1879. 8°. [3]

can Iron and Steel Association. Statistics of the American and
eign iron trades in 1879. Annual report of the secretary, J. M. Swank.
la., 1880. 8°. [3]
can journal of education. Ed. by H. Barnard. International series,
, Sept. 15, 1880; v. 6, March 15, 1881. [Hartford, 1880-81.] 2 v. 8°. [3]
can journal of insanity. Vol. 37. Utica, N.Y., 1880-81. 8°. [1]
can journal of science. 3d series, v. 21. New Haven, 1881. 8°. [1]
can law review. Vol. 14. Bost., 1880. 8°. [1]
can Peace Society. Stipulated arbitration a substitute for war.
st., 185-.] 8°. 16 p. (**Pm.**, v. 118.) [1]
can Pharmaceutical Association. Proceedings, 28th annual meet-
, 1880. Phila., 1881. 8°. [3]
can slavery English opinion of "Uncle Tom's Cabin." [Lond.,
.] 8°. 8 p. (**Pm.**, v. 118.) [1]
can Social Science Association. Journal of social science, contain-
the transactions of the Association. No. 10, 12-13. 1879-81. Bost.,
-81. 8°. 3 v. [1, 3]
can Statistical Association. Constitution and by-laws, with a list
fficers, fellows and members. Bost., 1881. 8°. [3]
can Temperance Society. Permanent temperance documents. Vol.
[4th-9th report, 1831-36.] Bost., 1835-[36]. 8°. [1]
Ellis. History of the Redman Farm, so-called, and of the title thereto,
Canton, Mass. Bost., 1870. 8°. 32 p. Map. [3]
Nathaniel. [Biographical sketch. Canton. 1880.] 4°. (2) p. [3]
ury, *Mass.* Annual statement of receipts and expenditures, with the
ort of the school committee for the year ending March 1, 1863-March
364. Amesbury, 1863-64. 8°. [2]
Ierrill, J.
st, *N.H.* **Congregational Meeting-House.** *See* **Davis,** J. G.
st College. Obituary record of graduates, 1875-80. [2d printed series,
3-8.] Amherst. 1875-80. 8°. [3]
Iitchcock, C. H.; — **Hitchcock,** E.
, Edmondo de. Holland and its people. Tr. from the Ital. by Caro-
Tilton. N.Y., 1881. 8°. Illus. [1]
n. Tr. from the Ital. by W. W. Cady. N.Y., 1881. 12°. Illus. [1]
t and Honorable Artillery Company. 206th, 218th, 242d annual
ord, 1843/44, 55/56, 79/80. Bost., 1880-81. 8°. [3]
ne authors of the sermons are as follows: **Putnam,** G., 1844; — **Alger,** W. R., 1856; —
le, E. E., 1880.
son, Alexander D. The Tehuantepec inter-ocean railroad. N.Y., 1880.
90 p. Maps. [1]
son, William Wemyss. A description and history of Jamaica. Re-
ted from the "Account of America" by J. Ogilby [with extracts
n the "Description of Jamaica," by R. Blome]. Kingston, 1851. 8°.
. (**Pm.**, v. 118.) [1]
sonville prison. *See* Voice from rebel prisons.
er, *Mass.* Abstract of the decennial valuation, and also of the per-
al estate, as assessed for the year 1850. Lawrence, 1851. 8°. [2]
Bailey, S. L.
er Theological Seminary. Catalogue of the officers and students,
/64, 80/81. Andover, 1864-81. 8°. [3]
, John. *See* **Brooks,** E.; — **Depew,** C. M.
w, John Albion. Address. *See* **New England Historic, Genea-
ical Society.**
ddress on dedicating the monument to Ladd and Whitney, killed at
timore, April 19, 1861, delivered at Lowell, June 17, 1865. Bost., 1865.
31 p. [3]
Chandler, P. W.; — **Massachusetts.** *General Court.*

Andrews, Charles. The prisoners' memoirs, or Dartmoor Priso the captivity of the Americans in England, and the horrid April, 1815. [*Anon.*] N.Y., 1852. 12°. [1]

Andrews, Israel Ward. When was Ohio admitted into the [187-]. 8°. 8 p. [3]

Andrews, R. E. Supplement to Wait's Table of cases of New 1872-80. Albany, 1880. 1. 8°. [1]

Andrews, Stephen M. A sketch of Elder Daniel Hix. With t the First Christian Church in Dartmouth, Mass., for one hu New Bedford, 1880. 12°. [1]

Angell, Joseph Kinnecutt. *See* **Rider, S. S.**

Anniversaries. *See* **Scott, L. A.**

Annuaire de l'économie politique et de la statistique, 1880. 37e a 1880. 18°. [1]

Annual register, 1880. New series. Lond., 1881. 8°. [1]

Anthony, Henry B. Defense of Rhode Island, her institutions, to her representatives in Congress. Speech in the Senate o States, Feb., 1881. Wash., 1881. 8°. 35 p. [3, *E. M. Stone, Pro*

— Memorial addresses in the Senate of the United States. Prov 8°. 52 p. Portraits. [3, *Author.*]

Memorials of Stephen A. Douglas, John R. Thompson, William B. Fesse Greene, Roger Williams, Jonathan Trumbull and Roger Sherman, the Chev Charles Sumner, William A. Buckingham

— *Same.* Supplement. Henry Wilson. *n.t.p.* [1875.] 8°. 6 [3, *Author.*]

— The situation in Louisiana. Speech in the Senate of the U Feb. 17, 1875. Wash., 1875. 8°. 9 p. [3, *Author.*]

Antietam, Battle of. *See* **Veterans' National Committee.**

Antietam National Cemetery. *See* **Bradford, A. W.**

Anti-Jackson Convention. *See* **Richmond,** *Va.*

Antiquarian papers, [relating to Ipswich]. Vol. 1; 2, no. 13-2 1879-81. sm. 4°. [3, *A. Caldwell, Ipswich.*]

Antrim, *N.H.* *See* **Cochrane, W. R.**

Arbitration. *See* **Weeks, J. D.**

Archæological Institute of America. 1st-2d annual report o tive committee, with accompanying papers. 1879-81. Camb. Illus. [3, *Hon. Martin Brimmer, Boston.*]

Contents.

1st report. Organization of the Institute, list of officers, *etc.* — Annual repo L. H. Study of the houses of the American aborigines with a scheme of ex ruins in New Mexico and elsewhere. — **Stillman,** W. J. Ancient walls on Mo province of Grosseto, Italy. — **Clarke,** J. T. Archæological notes on Greek 2d. Regulations, *etc.* — Annual report, with appendix.

— Papers. American series. 1. Bost., 1881. 8°. Plates. [3]

Contents.

Bandelier, A. F. Historical introduction to studies among the sedentary Mexico; — Report on the ruins of the pueblo of Pecos.

Architecture. *See* **Audsley,** W. J., *and* G. A.; — **Builder.**

Arctic regions. *See* **De Costa,** B. F.; — **Kane,** E. K.; — **Norde** E.; — **United States.** *Department of the Navy*; — *Revenue Ma* — **Wheildon,** W. W.

Arizona. *Legislative Assembly.* Acts, resolutions and memorials lative Assembly, 1881. Prescott, 1881. 8°. [2]

— — Journals of the 1st, 3d, 5th-8th Legislative Assembly, 18 Prescott, 1865-67, Tucson, 1869-75. 6 v. 8°. [2]

Arkansas. *Attorney-General.* Biennial report, 1880. Little 8°. [2]

— *Auditor of State.* Biennial report, 1880. Little Rock, 1880. 8°.

— *Board of Education.* Proceedings, 1874. Little Rock, 1874. 8°.

— *Commissioner of State Lands.* Biennial report, 1880. Little 8°. [2]

sas, *continued.*
Mute Institute. 6th biennial report, 1879-80. Little Rock, 1880. 8°. [2]
ral Assembly. Acts and resolutions, 1881. Little Rock, 1881. 8°. [2]
urnal of the House of Representatives, 13th session, 1860-61. Little
k, 1861. 8°. [2]
urnal of the Senate, 6th session, 1846. Little Rock, 1846. 8°. [2]
gical Survey. 2d report of a geological reconnoissance of the middle
southern counties of Arkansas, 1859-60. By D. D. Owen, assisted by
Peter, L. Lesquereux, E. Cox. Phila., 1860. 8°. Plates. [2]
nor. Inaugural address of T. J. Churchill, Jan., 1881. Little Rock,
. 8°. 6 p. [2]
ssage of W. R. Miller, 1879, 81. Little Rock, 1879-81. 8°. [2]
l for the Blind. 10th biennial report, 1878-80. Little Rock, 1880.
[2]
ary of State. Report, 1878, 80. Little Rock, 1878-80. 2 v. 8°. [2]
l Finance Committee in Regard to the Legislation upon the Holford Rail-
Aid and Levee Bonds. Report. Little Rock, 1877. 8°. 11 p. [2]
Superintendent of Public Instruction. Report, 1873; Biennial report,
-80 Little Rock, 1874-80. 2 v. 8°. [2]
me Court. Reports of cases, 1879. [By] J. M. Moore. Vol. 34. Little
k, 1881. 8°. [2]
urer of State. Biennial report, 1878, 80. Little Rock, 1878-80. 8°. [2]
clectic Society of Arkansas.
on, *Mass.* Report on the introduction of water into the town. Also
engineers and chemist's reports. Arlington, 1871. 8°. 32 p. [2]
ong, Edward. An address at Chester, before the Historical Society
ennsylvania, 8th Nov., 1851, in celebration of the 169th anniversary of
landing of Wm. Penn. Phila., 1852. 8°. 36 p. [3]
, Benedict. *See* **Arnold, I. N.; — Brooks, E.**
, Isaac N. Benedict Arnold at Saratoga. Reply to J. A. Stevens, and
evidence of Mr. Bancroft's error. *n.p.*, [1880]. 8°. 16 p. [3, *Author.*]
niscences of the Illinois bar forty years ago: Lincoln and Douglas as
ors and lawyers. Chicago, 1881. 8°. 29, 38 p. [3, *Author.*]
, Matthew. *See* **Sonnenschein, A.**
, William Thomas. The Roman system of provincial administration
ne accession of Constantine the Great. Lond., 1879. sm. 8°. [1]

The Arnold prize essay for 1879.

H., *pseud.* *See* **Rollins,** *Mrs.* **E. H.**
rnal, 1880. New series. Vol. 6. N.Y., [1880]. 4°. Engravings. [1]

With a supplement containing designs.

rnham, *Mass.* Copy of the valuation and taxes, 1857. Fitchburg,
. 8°. 30 p. [2]
rt of the selectmen, *etc.*, for the year ending Feb. 27, 1855, 60, 63.
hburg, 1855-63. 8°. [2]
ushing, J.
Mass. Expenses of the town for the year 1858-19. Fitchburg, 1859.
[2]
ation and taxes, with the expenses of the town, 1857/8; Valuation and
es, 1858. Fitchburg, 1858. 8°. [2]
, James M. Speech in the House of Representatives, [of the United
es], Jan. 6, 1865, on the constitutional amendment for the abolition of
ery. N.Y., 1865. 8°. 22 p. [3]
ation of Chambers of Commerce of the United Kingdom. [Re-
and resolutions, 20th-21st annual meeting, 1880-81. Lond., [1880]-81.
[3, *Hamilton A. Hill, Boston.*]
ation of Medical Superintendents of American Institutions for
Insane. Propositions and resolutions. Phila., 1876. 8°. 32 p. [3]

Astor Library, *N.Y.* The act of incorporation and by-laws. N 8 p. [3]

— [1st-26th], 28th-29th, 32d annual report of the trustees, [1849- Albany, 1850 81. 8°. [3]

Astronomy. *See* **United States.** *Naval Observatory ; — Ordnanc*

Athol, *Mass.* Expenses of the town for the year ending March the valuation and taxes, for 1866. Athol Depot, 1867. 8°. [3

— Valuation and taxes of the town, 1861, 68, 70, 72, 74, 76, 79. 79. 8°. [3, *Geo. Horr, and T. H. Goodspeed, Athol.*]

— **First Church and Society.** *See* **Clarke,** S. F.

Atkinson, Edward. Address in Atlanta, Ga., Oct., 1880, for t of an international cotton exhibition. Bost., 1881. 8°. 36 p.

— The railroads of the United States a potent factor in the p country and of Great Britain. Bost., 1880. 8°. ix, 48, 36 p.

— What is a bank? What service does a bank perform? Lectu Finance Club of Harvard University, March, 1880. N.Y., 18 (**Economic tracts,** no. 1.) [3]

Atkinson, William Parsons. Address before the sub-committe ton school board [on] a reorganization of the Boston high sc 1869. 8°. 16 p. [3]

— On the right use of books: a lecture. Bost., 1879. 16°. 65 p.

Atlantic monthly. Vol. 46-47. Bost., 1881. 2 v. l. 8°. [1]

Atlases. *See* **Beverly ; — Haverhill ; — Hurlbert,** J. B.; — **L blehead ; — Nahant ; — Rand, McNally & Co.; — Sanfor Co.; — Swampscot.**

Attleboro directory, 1881-82. Published biennially by E. S. M Providence, [1881]. 8°. [1]

Atwater, Edward E. History of the colony of New Haven to into Connecticut. New Haven, 1881. 8°. ix, 611 p. Illus.

Atwood, Charles R. Reminiscences of Taunton. Taunton, 18 trait. [1]

Auburn, *Mass.* Annual reports of the selectmen, treasurer, *etc* ending March 5, 1865-April 2, 1866. Worcester, 1865-[66]. 8°.

Audsley, William James *and* George Ashdown. Popular architecture and the allied arts. With illus. Vol. 1-2. N. l. 8°. [1]

Contents.

Vol. **1.** A — Aqueduct. **2.** Aquila — Baptisterium.
Vol. 1 is of the 3d edition.

Aurora, *Ill.* Annual reports of city officers for the year ending Aurora, 1880. 8°. [3]

Australasia. *See* **Wallace, A. R.**

Australia. *See* **Fitzgerald, J. F. V.; — Inglis,** J.

Austro-Hungary. *See* **Kay, D.**

Avery, William B. The marine artillery with the Burnside e the battle of Camden, N.C. Providence, 1880. sm. 4°. 2 **Island Soldiers and Sailors Hist. Soc.** Personal narr 2d ser.)

Ayer's almanac for 1881. In English, German, Dutch, Norweg French, Spanish, Portuguese, and Bohemian. Lowell, 12°. [3]

Backus, C. K. The contraction of the currency. An argu that the circulating medium of the country has not been ma ished since 1865. Also, an abstract of the laws of the United ing to loans and bonds, enacted since 1861. Chicago, 1878. 8

Bacon, Leonard Woolsey. A crime against society. Speech, N Jan. 19, 1880, on certain infamous proceedings of the officers under the state license law. N.Y., 1880. 16°. 29 p. [3, *Aut*

con, Leonard Woolsey, *continued.*

God's wonderful work in France. An introduction of the deputation from the Protestants of France to the American churches. N.Y., [1880]. 16°. 55 p. [3, *Author.*]

The law and the law-breakers. Speech, Norwich, Aug. 11, 1879, the day after the public defiance of the law of Connecticut securing a weekly day of rest. *n.p.*, [1879] 8°. 12 p. [3, *Author.*]

con, Steuben T. The ballot, dangers from its perversion. An appeal and method for maintaining its purity. Camb., 1881. 16°. 40 p. [3, *Author.*]

deau, Adam. Military history of Ulysses S. Grant, April, 1861-April, 1865. Vol 2-3. N.Y., 1881. 2 v. 8°. Maps. [1]

den. *Grossherzogliches Justizministerium.* Uebersicht der bürgerlichen Rechtspflege im Grossherzogthum Baden, 1879. Karlsruhe, 1880. 4°. [2]

- Uebersicht der Strafrechtspflege im Grossherzogthum Baden, 1879. Karlsruhe, 1880. 4°. [2]

iley, Alfred. The succession to the English crown. A historical sketch. Lond., 1879. sm. 8°. [1]

iley, Dudley P. The clearing house system in the United States and elsewhere, with statistics of the respective clearing houses. N.Y., 1881. 8°. 15 p. [1]

iley, George W. Report upon Alaska. *See* **United States.** *Revenue Marine Service.*

iley, Sarah Loring. Historical sketches of Andover, comprising North Andover and Andover, Mass. Bost., 1880. 8°. xxiv, 626 p. Portrait, map and illus. [1]

lance-sheet of the world. *See* **Mullhall,** M. G.

ldwin, Charles Candee. The Baldwin genealogy, 1500-1881. Cleveland, 1881. 8°. 974 p. Portraits and illus. [1]

ldwin, J. The art of school management. N.Y., 1881. 12°. [1]

ldwin, Loammi. Report on introducing pure water into the city of Boston. Bost., 1834. 8°. 78 p. [2]

ldwin genealogy. *See* **Baldwin,** C. C.

ll, Farlin Q. The law of national banks containing the national bank act, as amended, with forms of procedure and notes. Chicago, 1881. 8°. [1]

ll, Hervey. *See* **L.,** Y. N.

ll, Phinehas. Report upon union passenger station in Worcester. *h.t.p.* Worcester, [1871]. 8°. 17 p. [3]

llot. *See* **Suffrage.**

llou, Maturin M. Treasury of thought. Forming an encyclopædia of quotations from ancient and modern authors. 7th ed. Bost., 1881. 8°. [1]

llston, *N.Y.* *See* **Stone,** W. L.

ltimore, *M.D.* *City Council.* Baltimore city code: comprising the laws of Maryland relating to Baltimore, and the ordinances of the mayor and city council. Compiled by L. Mayer. Balt., 1879. 8°. iv, (4), 1299 p. [3]

- Mayor's message and reports of the city officers, 1877-79. Balt., 1878-80. 3 v. 8°. [3]

- Ordinances and resolutions of the mayor and city council, annual session, 1874-80. Balt., 1874-80. 7 v. 8°. [3]

- Ordinances of the city and acts of Assembly of the state of Maryland relating to the public schools of Baltimore, [1852, 57]. Balt., 1852-57. 8°. [3]

mmissioners of Public Schools. 21st, 26th, 28th, 32d-34th, 37th, 39th, 43d, 48th-51st annual report. Balt., 1850-80. 13 v. 8°. [3]

- Rules of order and regulations, 1854, 57. Balt., 1854-57. 8°. [3]

Peabody Institute. 12th-14th annual report, 1879-81. Balt., 1879-81. 8°. [3]

nk of England. *See* **Palgrave,** R. H. I.; — **Torrens,** R.

Bank of Maryland. *See* **Ellicott,** T.

Bank of the United States. Report of the committee of investig also, a report of the board of directors. Phila., 1841. 8°. 79, (1

Banker's almanac and register for 1881 and legal directory. [3 vol.] Ed. by B. Homans. N.Y., [1881]. 8°. [1]

Banker's magazine and statistical register. Vol. 35, or v. 15, 3d ser 1880-81. 8°. [1]

Banks, Charles E. Captain Walter Gendall, of North Yarmouth, biographical sketch. Yarmouth, 1880. 8°. 27 p. [3, *Author.*]

Banks *and* **Banking.** *See* **American Bankers' Association ;** — E.; — **Ball,** F. Q.; — **Bank of the United States ;** — **Banker'** — **Banker's** magazine; — **Carey,** M.; — **Defence,** *etc.*; — D C.; — **Gallatin,** (A. A.) A.; — **Greene,** W. B.; — **Greig,** J. F *Direzione della Statistica Generale* ; — **Memminger,** C. G.; — **Ri** H. W.; — **Spaulding,** E. G.; — **Stearns,** G. L.

Bardeen, C. W. Common school law. 7th thousand. Syrac [1878]. 16°. (School bulletin publications.) [3]

Barn plans and outbuildings. [*Anon.*] Illus. N.Y., 1881. 12°.

Barnard, Charles. Co-operation as a business. N.Y., 1881. 16°.

Barnard, Frederick A. P., *and* **Guyot,** A. (H.) 1st biennial sup Johnson's New universal cyclopædia. Illus. N.Y., 1880. l. 8°.

Barnardiston, Thomas. Reports of cases in the Court of Kin [1726-34. Lond.], 1744. 2 v. f°. [1]

With autograph of George Read, signer of the Declaration of Independence a

Barney, C. Henry. A country boy's first three months in the arn dence, 1880. sm. 4°. 47 p. (**Rhode Island Soldiers and Sa Soc.** Personal narratives, no. 2, 2d ser.)

Barns, Chancy R., *editor.* The commonwealth of Missouri. A record. St. Louis, 1877. l. 8°. xxiv, 936 p. Portraits, maps [1]

Content.

Conant, A. J. Archæology: the mounds and their builders. — **Switzler** torical sketch of Missouri. — **Swallow,** G. C. Physical geography of Missou **bell,** R. A. Material wealth of Missouri. — **Harris,** W. T. Education in M great cities and towns of Missouri, with biographical sketches, by several writer

Barnstable, *Mass.* *See* **Palfrey,** J. G.

Barnstable County directory. *See* **Plymouth County.**

Barr, Thomas F. Memorial address, Stillwater, Minn., May 30, [1879]. 8°. 12 p. [3, *Author.*]

Barrande, Joachim, *and others.* Correspondence of Barrande, Sir and J. Hall, on the Taconic system and the age of the fossils fo rocks of northern New England, and the Quebec group of ro [Albany, 1861.] 8°. 18 p. [3]

From the American journal of science, March, 1861.

Barre, *Mass.* Report of the committee on the public library for 18 [1872]. 8°. 8 p. [3]

— Valuation and taxes, 1855-66, 77-80. Worcester, Barre, [1855-80]. *W. Jenkins, Barre, etc.*]

— *See* **Thompson,** J. W.

Barrows, John H. History of the Eliot Congregational Church, Mass. Anniversary sermon, March 14, 1880. Lawrence, 1880. [3, *Author.*]

Barrows, Samuel June. Proceedings, 250th anniversary of the Fi and parish of Dorchester. *See* **Dorchester.**

Barrus, Hiram. History of Goshen, Mass., 1761-1881. With famil Bost., 1881. 8°. Portraits and illus. [1]

Bartlett, John Russell. A history of the destruction of [the] Narragansett Bay, 10th June, 1772. Providence, 1861. l. 8°. [1]

— Index to the printed acts and resolves of Rhode Island, 18 **Rhode Island.** *General Assembly.*

rtlett, William Henry. The Pilgrim Fathers; or, The founders of New England in the reign of James I. Illus. Lond., 1853. 8°. [1]

See **Smith,** I. W.

rtol, Cyrus Augustus. Christ the way. A sermon preached at the ordination of G. M. Bartol, First Church, Lancaster, Mass., Aug. 4, 1847. Lancaster, 1847. 8°. 50 p. [3, *H. S. Nourse, Lancaster, Mass.*]

James T. Fields. A discourse in West Church, Boston. Bost., 1881. 8°. 21 p. [1]

Our sacrifices. A sermon, Nov. 3, 1861, the Sunday after the funeral of Lieut. William Lowell Putnam Bost., 1861. 8°. 23 p. [1]

rton, Hull. An exposition of facts, in a letter to S. Gould, an elder of the Society of Friends. New-Bedford, 1823. 8°. 34 p. [3]

scom, John. Political economy. Bost., 1859. 12°. [1]

Truth and truthfulness. A baccalaureate sermon to the graduating class of the University of Wisconsin, June 19, 1881. Milwaukee, 1881. 8°. 23 p. [3, *Author.*]

tchelder, Henry M. Visitors' guide to Salem. [*Anon.*] Salem, 1880. 12°. 54, XXXII p. [3]

tes, Joshua. *See* **Threshing-floor,** *etc.*

th and West of England Society for the Encouragement of Agriculture, Arts, Manufactures, and Commerce. Rules, orders, and premiums; with a list of the members of the Society, *etc.*, 1815. Bath, 1816. 8°. 74 p. [3]

xter, Jere. Reports of cases in the Supreme Court of Tennessee, 1874-76. Vol. 8. Nashville, 1880. 8°. [2]

Contents.

Vol. 8. Eastern division, Sept., 1874-75; middle division, Dec., 1874-76; western division, April, 1876.

yles, Richard M. Historical and descriptive sketches of Suffolk County; with a historical outline of Long Island. [And a letter from Dr. E. F. Peck, containing a short history of Lakeland.] Port Jefferson, L.I., 1874. 12°. [1]

yley, John. The history and antiquities of the Tower of London, with memoirs. 2d ed. Lond., 1830. 8°. vi, (2), 627 p. [1]

aconsfield, Benjamin Disraeli, *Earl of.* Wit and wisdom of Disraeli. N.Y., 1881. 12°. [1]

aman, C. C. An historical address, delivered in Scituate, R.I., July 4, 1876. Phenix, [R.I.], 1877. 8°. 59, 8 p. [1]

arse, Austin. Reminiscences of fugitive-slave law days in Boston. Bost., 1880. 8°. 41 p. Illus. [1]

ers, Seth P. Public statute laws of Connecticut, [1824]. *See* **Connecticut.** *General Assembly.*

esly, Augustus Henry. Sir John Franklin. N.Y., 1881. 16°. Maps. (New Plutarch.) [1]

et. *See* **Goessmann,** C. A.

ke, Charles Tilstone. A lecture on the sources of the Nile. Delivered in the theatre of the London Institution, Jan. 20, 1864. Lond., 1864. 8°. Map. 35 p. [3]

ll, Charles Henry. Address in memory of Hon. Ira Perley, LL.D., before the Alumni Association of Dartmouth College, June 23, 1880. Concord, 1881. 8°. 16 p. [3, *Author.*]

Discourse before the New-England Historic, Genealogical Society, March 18, 1871, on the dedication of the Society's House. Bost., 1871. 8°. 23 p. [3]

Exeter, [N.H.], in 1776. Prepared for the ladies' centennial levee, Feb. 22, 1876. [*Anon.*] Exeter, 1876. 12°. 39 p. [3, *Author.*]

Bell, Charles Henry, *continued.*

— Men and things of Exeter. [*Anon.*] Exeter, [1880]. 8°. 73 p. [3,

Bellinger, C. B. Reports of cases in the Supreme Court of Oregou
Vol. 7-8. San Francisco, 1880. 2 v. 8°. [2]

Bellomont, Richard Coote, *Earl of.* *See* **De Peyster, F.**

Bellows, Henry Whitney. Historical sketch of the Union League
New York, 1863-79. N.Y., 1879. sm. 4°. [3]

— In memoriam. William Cullen Bryant. Funeral oration, [June
N.Y., [1878]. 8°. 11 p. [3]

Beloit College, *Beloit, Wis.* 32d annual catalogue of the officers
dents, 1879-80. Beloit, 1879. 8°. [3]

Benedict, Erastus C. The battle of Harlem Heights, Sept. 16, 177
before the New York Historical Society, Feb. 5, 1878. With a pr
notes. N.Y., [1881]. 8°. xi, 62 p. [3, *Author.*]

Benedict, Robert D., *and* **Benjamin Lincoln.** Reports of cases in th
Courts of the United States within the 2d circuit, [1877-78]. Vol.
1880. 8°. [2]

Benjamin, Samuel Green Wheeler. Troy, its legend, history and l
With a sketch of the topography of the Troad, in the light of r
vestigation. With map. N.Y., [1880]. 16°. (**Cox,** *Sir* G. W.,
key, C. Epochs of ancient history.) [1]

Bennett, Edmund Hastings. Farm law: a treatise on the legal ri
liabilities of farmers. Portland, Me., [1880]. 12°. [1]

Enlarged from his lecture before the State Board of Agriculture on the same su

— *and others.* Massachusetts digest of the reported decisions of the
Judicial Court, 1804-79, with references to earlier cases. Bost., 1
1. 8°. [1]

Contents.

Vol. 1. Abandonment — Evidence. 2. Exceptions — Play.
3. Pleading — Year.

Bennington, *Vt.* *See* **Tyler, A.**

Bennington Historical Society. The Bennington battle monun
centennial celebration. Statement of the Society. Added, an a
the battle of Bennington by H. Hall. Milford, 1877. 8°. 20 p.

Berg, C. P. J. van den. The theory of wages. Tr. from the Dutch
1880. 8°. 25 p. [1]

Bergen, Teunis G. Genealogy of the Lefferts family, 1650-1878.
1878. 8°. [1]

Berkshire County, *Mass.* Statement of the receipts and expenditu
county for the year ending Dec. 31, 1870-71. *n.t.p.* [1870-71.] 4°.

Berlin, *Mass.* *See* **Carter, A.**

Berry, A. Moore. Cases determined in the St. Louis Court of A
Missouri, 1879-80. Vol. 7-8. St. Louis, 1880-81. 2 v. 8°. [1]

Beverly, *Mass.* *See* **Hopkins, G. M.**

Beverly directory. *See* **Danvers.**

Bible. The New Testament. Revised, 1881. Printed for the Univ
Oxford and Cambridge. Oxford, 1881. 8°. xxv, (1), 606 p. [1]

— *See* **Gulliver, J. P.**; — **Lees, F. R.,** *and* **Burns, D.**; — **McClintoc**
Strong, J.; — **Young, R.**

Bibliography. *See* **Hunnewell, J. F.**; — **Ludewig, H. E.**; — **Pu**
trade list annual; — **Publishers' weekly**; — **Sabin, J.**

Bicknell, Charles F., *and* **Hawley, T. P.** Reports, 1880. *See*
Supreme Court. Reports, v. 15.

Bicknell, Joshua. *See* **Bicknell, T. W.**

Bicknell, Thomas Williams. A memorial of a respectable and
family and especially of Joshua Bicknell. Bost., 1880. 8°.
[3, *Author.*]

Bicknell Family Association. The Bicknells and the family re-union, at Weymouth, Mass., Sept. 22, 1880. Addresses, poems and speeches. [Compiled by T. W. Bicknell.] Bost., 1880. 8°. 96 p. [3, *Hon. T. W. Bicknell, Boston.*]

Biddle, Charles John. *See* **Philadelphia. Bar.**

Bigelow, Erastus B. The tariff policy of England and of the United States contrasted. Bost., 1877. 8°. 61 p. [3, *John L. Hayes, Boston.*]

Bigelow, John P. *See* **Bigelow, T.**

Bigelow, Marshall Train. Punctuation, and other typographical matters, for the use of printers, authors, teachers, and scholars. Bost., 1881. 18°. [1]

Bigelow, Melville Madison. History of procedure in England from the Norman conquest. The Norman period, 1066–1204. Bost., 1880. 8°. [1]

— The law of bills, notes, and checks, illustrated by leading cases. 2d ed. Bost., 1880. 8°. xliii, 692 p. [1]

Bigelow, Timothy, *d.* 1821. Diary of a visit to Newport, New York, and Philadelphia during the summer of 1815. Ed. by [A. Lawrence]. Bost., 1880. 8°. 29 p. [3, *Abbott Lawrence, Boston.*]

Bigelow, Timothy. Reply to F. Brinley, on the claims of Hon. J. P. Bigelow as founder of Boston Public Library. Bost., 1880. 8°. 50 p. [3, *Samuel A. Green, M.D., Boston.*]

Billerica, *Mass.* Celebration of the 200th anniversary of the incorporation of Billerica, May 29, 1855: including the address [by J. Richardson], poem [by D. Parker], and other exercises. Lowell, 1855. 8°. [1]

Bills of Exchange. *See* **Bigelow, M. M.**

Bimetallism. *See* **Sumner,** W. G.

Binmore, Henry. Index-digest of the Michigan reports. Contained in Harrington's chancery, Walker's chancery, Douglas' reports, and Michigan reports, v. 1-42. Chicago, 1881. 16°. iv., 1144 p. [1]

Biography. *See* **American; — Bungay, G. W.; — Crosby, N.; — Davidson, J. M.; — De Peyster, F.; — Forney, J. W.; — New England Historic Genealogical Society; — Sibley, J. L.**

Bird, Francis W. Retrenchment and reform in state expenditures. Bost., 1879. 8°. 28 p. [3]

Bird, Isabella L. A lady's life in the Rocky Mountains. With illus. N.Y., 1879-80. sm. 8°. [1]

— Unbeaten tracks in Japan. Account of travels in the interior; including visits to Yezo and the shrines of Nikkô and Isé. With map and illus. N.Y., 1881. 2 v. 8°. [1]

Birds. *See* **Conant,** G.; — **Dresser, H. E.; — Nuttall Ornithological Club.**

Bishop, Joel Prentiss. Commentaries on the criminal law. 6th ed., enlarged. Bost., 1877 2 v. 8°. [1]

— Commentaries on the law of marriage and divorce; also of separations without divorce. 6th ed , enlarged. Bost., 1881. 2 v. 8°. [1]

Black, Jeremiah S. Observations on territorial sovereignty, consisting of answers to the magazine article, speeches, and pamphlets of Senator Douglas Wash., 1860. 8°. 24 p. [1]

Blackstone, William. *See* **De Costa,** B. F.

Blackstone, *Mass.* Annual reports of the selectmen and overseers of the poor for the year ending Feb. 1, 1861. Worcester, [1861]. 8°. [3]

Blackwood's Edinburgh magazine. Vol. 128-129. N.Y., 1880-81. 2 v. 8°. [1]

Blagden, George Washington. Pastor's memorial. 25th anniversary of the installation of Blagden as pastor of the old South Church and Society in Boston. [Bost.], 1862. 16°. [2]

Blaikie, William Garden. The personal life of David Livingstone. Chiefly from his unpublished journals and correspondence. With portrait and map. N.Y., 1881. 8°. [1]

Blair, Montgomery. [Letter] to Maj.-Gen. Fitz John Porter. Morris
N.J., 1874. 8°. 6 p. [3, *Gen. Fitz John Porter, Morristown, N.J.*]

Blake, Henry N., *and* **Hedges,** C. Reports of cases, 1877–80. *See* **Mont**
Supreme Court. Reports, v. 3.

Blake, James Barnard. *See* **Worcester.** *City Council.*

Blakely, Quincy. A historical discourse at the centennial celebration o
Congregational Church in Campton, N.H., Oct. 20. 1874, and other pa
Bost., 1876. 8°. 78 p. [1]

Blanchard, Rufus. The discovery and conquests of the Northwest, in
ing the early history of Chicago, Detroit, Vincennes, *etc.* [Added, W
ington's Journal of a tour to the Ohio, in 1753; with notes by J. G. S
Chicago, 1880 8°. Maps and illus. [1]

Blanchard, Thomas. *See* **Waters,** A. H.

Bland, T. A. Life of Benjamin F. Butler. Bost., 1879. 16°. [3]

Blatchford, Samuel. Reports of cases in the Circuit Court of the U
States for the 2d circuit, [1878-80]. Vol. 15-17. N.Y., 1880-81. 3 v. 8

Blind. *See* **American Association of Instructors of the Blin**
Arkansas. *School for the Blind;* — **Michigan Institution for the**
cation of the Deaf and Dumb and Blind; — **Ohio.** *Institutio*
the Education of the Blind; — **Perkins Institution and Massachu**
Asylum for the Blind.

Bliss, George. Special and local laws affecting public interests in the
of New York, 1880. *See* **New York.** *Legislature.*

Bliss, George N. An historical sketch of East Providence, delivered J
1876. Providence, 1876. 18°. 52 p. [3, *Author.*]

Bogardus family. *See* **Gale,** G.

Bohn, Henry George. A dictionary of quotations from the English
Lond., 1881. 8°. xx, 715 p. [1]

Boies, Andrew J. Record of the 33d Massachusetts volunteer infa
1862-65. Fitchburg, 1880. 8°. Portrait. [1]

Boston, *Eng.* *See* **Thompson,** P.

Boston, *Mass.* By-laws and orders of the town, 1758. Bost., 1758. sm
16 p. [2]

Imperfect.

— *Same.* 1785–86. Bost., 1786 8°. [2]

— *Same.* 1801; with the rules and regulations of the board of health.
laws of the commonwealth relating to town affairs. Bost., 180
82, (2) p. [2]

— List, stating the amount of real and personal estate valued, doome
sessed and taxed for the year 1821. Bost., 1822. 8°. [2]

— [Report of the committee appointed to recommend a system for the
efficient administration of the town and county government.]
[Bost., 1821.] 8°. 16 p. [2]

— *Auditor of Accounts.* Annual report of receipts and expenditures fo
financial year 1879–80. No. 68. Bost., 1880. 8°. [3]

— *Board of Aldermen.* Statutes, ordinances, and rules and regulations fo
government of the Boston police. Bost., 1870. 12°. 61 p. [2]

— *Board of Commissioners of the Department of Parks.* 1st [annual] r
Jan. 1, 1876; 2d-4th report, [April, Sept., Oct.], 1876; 2d annual re
1876; 6th report, Dec. 1877; 3d-6th annual report for the year 18
Bost., 1876-81. 8°. [3]

The series is complete; the 2d to 4th reports for April, Sept. and Oct. 1876. and the
Dec. 1877 are supplementary to the 1st and 2d annual reports. This list includes those
printed on the main catalogue.

— *Board of Directors for Public Institutions.* [1st] report, 1857; [2d]-24t
nual report, 1858-81. Bost., 1860-81. 8°. [3]

The first two reports are reprinted, 1875.

Boston, *Mass., continued.*

— *Board of Health.* Abstract of the bill of mortality, 1812-14. Bost., 1814. 8°. Broadside. [2]

— — 8th-9th annual report, 1879-81. Bost., 1880-1881. 8°. [3]

— — Report. Bost., 1802. Broadside. [2]

— *Board of Registrars of Voters.* Tabulated statement of the United States census of 1880, arranged by wards and precincts, and number of registered voters at the state and municipal elections; with the votes cast for presidential electors and mayor, 1880. [Bost., 1881.] 8°. (5) p. [3]

— *City Council.* Celebration of the 250th anniversary of the settlement of Boston, Sept. 17, 1880. [Including the oration by F. O. Prince.] Bost., 1880. l. 8°. Portraits, map and illus. [3]

— — Digest of statutes and ordinances relating to public health. New ed. Bost., 1873. 16°. 76 p. [2]

— — Documents of the city, 1880. Bost., 1881. 3 v. 8°. [3]

— — Municipal register, 1877, 80. Bost., 1877-80. 2 v. 8°. [3]

— — Ordinance prescribing rules and regulations relative to nuisances, and causes of sickness within the city. *h.t.p.* [Bost., 1833.] 8°. 8 p. [2]

— — Ordinances passed since 1834, with the acts of the Legislature relating to the city. Bost., 1843. 8° 75, iv p. [2]

— — Ordinances and rules and orders, 1870-74. Bost., 1874. 8°. [3]

— — Ordinances passed since 1874, and acts of the Legislature on municipal subjects, passed in 1874. Bost., 1875. 8°. 67 p. [3]

— — Ordinances, and acts of the Legislature, *etc.*, passed in 1875. Bost., 1876. 8°. [3]

— — Proposed amendments of the city charter. Bost., 1838. 8°. 24 p. [2]

— — [Report of the committee on the extension of Faneuil Hall Market.] *n.t.p.* [Bost., 1826.] 8°. 38 p. [2]

— *City Hospital.* 14th-16th report of the trustees, [1878]-80. Bost., 1878-80. 3 v. 8°. [3]

— *Mayor.* Communication to the city council on the subject of introducing water into the city. [By T. Lyman, Jr., Mayor.] Bost., 1834. 8°. 39 p. [2]

— *Overseers of the Poor.* To their constituents. [Statement of the misunderstanding between them and the City Council.] *h.t.p.* [Bost., 1823.] 8°. 32 p. [2]

— *Public Library.* 28th-29th annual report, 1880-81. *h.t.p.* [Bost., 1880-81.] 8°. [3]

— — Bulletin. Vol. 4. No. 9-11. Whole no. 56-58. [Bost., 1881.] l. 8°. [3]

— — *Lower Hall. Central Department.* Catalogue of books in foreign languages in the library. 3d ed. May, 1881. Bost., 1881. l. 8°. 32 p. [3]

— — — Catalogue of works in the arts and sciences. Supplementary list, May, 1881. Containing books added, 1871-81. Bost., 1881. l. 8°. 54, (2) p. [3]

— *Record Commissioners.* 4th-[6th] report. Bost., 1880-81. 3 v. 8°. [3]

Contents.

4th. Dorchester town records.
5th. "Gleaner" articles relating to the history of estates lying on or around Beacon Hill, by N. I. Bowditch.
6th. Roxbury lands and church records.

— *School Committee.* Annual report, 1879-80. Bost., 1879-81. 2 v. 8°. [3]

In the report for 1879, the Semi-annual reports of the Superintendent of Public Schools, Annual report of the Board of Supervisors, Report of the committee on music and drawing, *etc.*, have separate title-pages and are separately paged.

— — Manual of the public schools, 1868, 81. Bost., 1868-81. 2 v. 24°. [3]

— — Memorial of the dedication of the public Latin and English high schoolhouse. With a description of the building. Bost., 1881. 8°. [3]

— — Report of a sub-committee recommending improvements in the system of instruction in the grammar and writing schools. Bost., 1828. 8°. 37 p. [2]

— — [Report of the] committee [on] the expediency of revising the by-laws, particularly in regard to the course of studies pursued in the schools. [Bost., 1835.] 8°. 4 p. [2]

Boston, *Mass., continued.*

— - Report on the state of the schools, May, 1826. Bost., 1826. 8°. 14 p.

— - Rules of the school committee and regulations of the public schools, 1878. Bost., 1878. 8°. [3]

— *School Committee and Superintendent of Public Schools.* Annual report Bost., 1855. 8°. [3]

— *Superintendent of Schools.* 3d annual report. Bost., 1853. 8°. [3]

— *Water Commissioners, Water Board, etc.* 1st-2d, 4th-5th annual r 1877-78, 80-81. Bost., 1877-81. 4 v. 8°. [3]

— - Report of the Cochituate Water Board, 1876. Bost., 1876. 8°. [3]

— - Report of the commissioners to devise a plan for supplying Bosto pure water. Bost., 1837. 8°. 83 p. [2]

— - Report of the commissioners to examine the sources from which a s of pure water may be obtained. Bost., 1845. 8°. [2]

— - Report on the material best adapted for distribution water pipes; the most economical mode of introducing water into private h Bost., 1848. 8°. 67 p. [2]

— *See* **Baldwin, L.**; — **Clapp, O.**; — **Dix, J. R.**; — **Hassam, J. T.**; — M.; — **Massachusetts.** *General Court;* — **Potter, J. S.**; — **Whe** W. W.; — **Winsor, J.**

Associated Charities. 1st annual report, 1880. Bost., 1880. 8°. [3]

— - A directory of the charitable and beneficent organizations of Bosto legal suggestions, health hints, *etc.* Bost., 1880. 16°. [3]

— - Report of the committee on industrial training. Bost., 1881. 8°. 8

— **Athenæum.** Catalogue of the library, 1807-71. Part 4. [O-S] 1880. l. 8°. [3]

— **Baldwin Place Home for Little Wanderers.** 16th annual Bost., 1881. 8°. [4]

— **Board of Trade.** 27th annual report, 1881. By E. J. Howard. 1881. 8°. [3]

— **Boston and Albany Railroad.** 13th annual report. Springfiel [1880]. 8°. [3]

— - Resolutions passed at a meeting, July 15, 1880, suggested by the d Daniel Waldo Lincoln, and memorial addresses by A. H. Bullock Gillett, G. S. Hale. *n.p.*, [1880]. 8°. 11 p. [3]

— **Boston and Lowell Railroad.** Report of the directors, 1880. 1880. 8°. [3]

— - *See* **Choate, C. F.**; — **George, J. H.**

— **Boston and Maine Railroad.** Report of the directors, 1880. Bost 8°. [3]

— **Boston and Providence Railroad.** Report of the directors, 1880. 1880. 8°. [3]

— **Boston and Worcester Railroad.** Statements and arguments petition of the Boston and Worcester and Western Railroad Corpo for the consolidation of those roads. Bost., 1864. 8°. 89 p. [3]

— **Boston Fish Bureau.** 6th annual report. By W. A. Wilcox, sec Bost., [1881]. 12°. [3]

— **Boston University.** President's annual report, 1876-77, 1879-80. 1878-81. 8°. [3]

— - Year book. Vol. 8. Bost., 1881. 8°. [3]

— **Boylston Medical School.** Catalogue of officers and students Bost., 1853. 8°. [4]

— **Channing Home.** Report no. 13, 1881. Bost., 1881. 12°. [3]

— **Children's Hospital.** 11th annual report, 1879. Bost., 1880. 8°. [3

— **Christ Church.** *See* **Watson, J. L.**

— **Committee of Citizens of Massachusetts.** Visit of the Hon Schurz to Boston, March, 1881. Bost., 1881. 8°. 87, (1) p. Portrait

Addresses by C. R. Codman, C. Schurz, C. W. Eliot, and others.

Boston, *Mass., continued.*

- **Faneuil Hall Market.** *See* **Boston.** *City Council;* — **Wheildon,** W. W.
- **First Baptist Church.** *See* **Crane,** C. B.
- **First Church.** Commemoration of the completion of two hundred and fifty years since its foundation, Nov. 18, 1880. Also four historical sermons [by R. Ellis and N. L. Frothingham]. With illus. Bost., 1881. 8°. [3]
- *See* **Ellis,** R.
- **General Theological Library.** 13th annual report of the directors and treasurer; constitution and by-laws, *etc.* Bost., 1875. 8°. [3]
- **Home for Aged Men.** 7th annual report. Bost., 1868. 8°. [3, *S. P. Mayberry, Boston.*]
- **King's Chapel.** *See* **Peabody,** A. P.
- **Maverick National Bank.** Government securities. [Bost., 1881.] 16°. 71 p. [4]
- **Museum of Fine Arts.** 5th annual report, 1880. Bost., 1881. 8°. [3]
- **Old South Church.** *See* **Blagden,** G. W.; — **Eliot,** C. W.; — **Phillips,** W.
- [**Ponca**] **Committee.** Secretary Schurz. Reply of the Boston Committee. Gov. J. D. Long, chairman. Misrepresentations corrected and important facts presented. Bost., 1881. 8°. 21 p. [4]
- **Public Latin School.** *See* **Jenks,** H. F.
- **Sea Shore Home.** Reports of the executive committee, physician, treasurer, and house committee, 1879. Bost., 1880. 12°. 11, (1) p. [3]
- **Society of Natural History.** Anniversary memoirs, published in celebration of the 50th anniversary of the Society's foundation. 1830–80. Bost., 1880. 4°. Portraits, plates, and illus. [1]

Contents.

List of the officers. — Prefatory note. — **Bouvé,** T. T. Historical sketch of the Society; with a notice of the Linnæan Society, which preceded it. — **Shaler,** N. S. Propositious concerning the classification of lavas. — **Hyatt,** A. — Genesis of the tertiary species of planorbis at Steinheim. — **Scudder,** S. H. The Devonian insects of New Brunswick. — **Farlow,** W. G. The gymnosporangia or cedar-apples of the United States. — **Lyman,** T., *3d.* A structural feature, hitherto unknown among echinodermata, found in deep-sea ophiurans. — **Brooks,** W. K. The development of the Squid Loligo Pealii (Lesueur). — **Packard,** A. S., *Jr.* The anatomy, histology, and embryology of limulus polyphemus. — **Burgess,** E. Contributions to the anatomy of the milk-weed butterfly Danais Archippus (Fabr.). — **Clarke,** S. F. Development of a double-headed vertebrate. — **Minot,** C. S. Studies on the tongue of reptiles and birds. — **Morse,** E. S. On the identity of the ascending process of the astragalus in birds with the intermedium. — **Carr,** L. Notes on the crania of New England Indians. — **James,** W. The feeling of effort.

- Annual, 1868/69. 1. Bost., 1868. 16°. [1]
- Condition and doings of the Society, as exhibited by the annual reports, May, 1865-68. Bost., 1865-68. 8°. [1]
- Memoirs; being a new series of the Boston journal of natural history. Vol. 1-2. Bost., 1866-78. 2 v. 4°. Illus. [1]

Contents.

Vol. **1. Verrill,** A. E. Revision of the polypi of the eastern coast of the United States. — **Wilder,** B. G. Morphology and teleology, especially in the limbs of mammalia. — **Winchell,** A., *and* **Marcy,** O. Enumeration of fossils collected in the Niagara limestone at Chicago, Ill.; with descriptions of several new species. — **Clark,** H. J. Anatomy and physiology of the vorticellidan parasite, trichodina pediculus Ehr., of hydra. — **Coues,** E. Osteology of the colymbus torquatus, with notes on its myology. — **Scudder,** S. H. Inquiry into the zoölogical relations of the first discovered traces of fossil neuropterous insects in North America; with remarks on the difference of structure in the wings of living neuroptera. — **Hyatt,** A. Parallelism between the different stages of life in the individual and those in the entire group of the molluscous order tetrabranchiata. — **Packard,** A. S., *Jr.* Observations on the glacial phenomena of Labrador and Maine, with a view of the recent invertebrate fauna of Labrador. — **Clark,** H. J. The spongiæ ciliatæ, as infusoria flagellata; or, Observations on the structure, animality and relationship of Leucosolenia botryoides Bowerbank. — **Brigham,** W. T. Notes on the volcanic phenomena of the Hawaiian Islands. — **Whittlesey,** C. Weapons and military character of the race of the mounds. — **Vose,** G. L. The distortion of pebbles in conglomerates, with illustrations from Rangely Lake, in Maine. — **Allen,** J. A. Notes on birds observed in western Iowa, July–Sept., in northern Illinois, May–June, and at Richmond, Ind., June 3-10. — **Brigham,** W. T. Notes on hesperomannia, a new genus of Hawaiian compositæ. — **Mann,** H. Notes on alsinidendron, platydesma, and brighamia, new genera of Hawaiian plants, with an analysis of the Hawaiian flora. — **Sumichrast,** F. Geographical distribution of the native birds of Vera Cruz, with a list of the migratory species. Tr. from the French by T. M. Brewer. — **Brigham,** W. T. Eruption of the Hawaiian volcanoes, 1868. — **Whittlesey,** C. Physical geology of eastern Ohio.

2. Brigham, W. T. Volcanic manifestations in New England; enumeration of the principal earthquakes, 1638-1869. — **Morse,** E. S. Early stages of terebratulina. — **Coues,** E. Osteology and myology of didelphys virginiana: with an appendix on the brain, by J. Wyman. — **Packard,** A. S., *Jr.* Development of limulus polyphemus. — **Dwight,** T., *Jr.* Descrip-

Boston, *Mass., continued.*

tion of the whale, balænoptera musculus, in the possession of the Society.—S S. H. Carboniferous myriapods preserved in the sigillarian stumps of Nova Scotia **caster,** A. Note additionelle au mémoire intitulé "Volcanic manifestations in land"—**Morse,** E. S. Embryology of terebratulina.—**Lawrence,** G. N. Birds o Mexico; with notes on their habits, *etc.*, by A. J. Grayson.—**Shaler,** N. S. Recent of level on the coast of Maine.—**Scudder,** S. H. Species of the lepidopterous ge phila.—**Shaler,** N. S. Antiquity of caverns and cavern life of the Ohio valley. **Sacken,** C. R. R., *Baron* von. Monograph of the tabanidæ of the United States, **Hyatt,** A. Revision of the North American poriferæ, part 1.—**Packard,** A. S., nandromorphism in lepidoptera.—**Scudder,** S. H. Structure and transformations o atala.—**Osten Sacken,** C. R. R., *Baron* von. Monograph of the tabanidæ, **Hyatt,** A. Revision of North American poriferæ, part 2.—**Osten Sacken,** C. R von. Monograph of the tabanidæ, supplement.—**Scudder,** S. H. Fossil myriap Nova Scotia, supplement.

— - Occasional papers. 2. Bost., 1875. 8°. [1]

Contents.

2. Hentz, N. M. The spiders of the United States. Ed. by E. Burgess, with descriptions by J. H. Emerton.

— - Proceedings. Vol. 14, part 1-3; vol. 15. 1870-73. Bost., 1872-7 8°. [1]

— **Society to Encourage Studies at Home.** 5th, 8th annual report. 1878-81. 8°. [3]

— **Thursday Evening Club.** Proceedings on the death of Edward [Jan. 26, 1865]. Bost., 1865. 8°. 20 p. [3]

— **Union Club.** Constitution and by-laws. With a list of the offic members. Bost., 1866. 16°. 29 p. [3]

— **Warren Street Chapel.** Proceedings, 12th, 21st, 26th-27th annua ing of the Association for the Support of the Warren Street Chape 44th annual meeting of the corporation, proceedings and report. 1849-81. 16°. [3]

— **World's Fair,** 1885. Report of 1st meeting of merchants, manufa and business men, May 25, [1881], for the purpose of inaugurating a fair to be held in Boston, 1885. Bost., 1881. 8°. 28 p. [3, *John C Boston.*]

— **Young Men's Christian Union.** Report, 1874, 80-81. Bost., 16°. [3]

Boston almanac, 1837. [No. 2. 2d ed.] Bost., [1837]. 24°. [1]

— *Same.* 1881. Vol. 46. Bost., [1880]. 24°. Map. [1]

Boston business and copartnership directory. Bost., 1863-4. 16°. [3, *tus Russ, Boston.*]

Boston daily advertiser, July, 1880-June, 1881. Bost., 1880-81. 2 v.

Boston daily evening traveller, July, 1880-June, 1881. Bost., 1880-8 f°. [1]

Boston [daily] post, July, 1880-June, 1881. Bost., 1880-81. 2 v. f°.

Boston directory. No. 77. 1881. Bost., [1881]. 8°. [1]

Boston Harbor. *See* **Alexander, J.**;—**Candage, R. G. F.**;—**Mas setts.** *General Court,*—*Harbor and Land Commissioners.*

Boston morning journal, July, 1880-July, 1881. Bost., 1880-81. 2 v. *Publishers.*]

Boston transcript. *See* **Hovey, W. A.**

Botany. *See* **Darwin, C.** (R.) *and* **F.**;—**Meehan, T.**;—**Wallace, A.**

Boucicault, Dion. The story of Ireland. Bost., 1881. 12°. 24 p. [1

Bouquet, Henri. *See* **Smith, H.**

Bourne, Stephen. Trade, population and food. Papers on economic tics. Lond., 1880. 8°. [1]

Boutwell, George Sewall. Argument before the Senate of the United sitting for the trial of Andrew Johnson, April 22-23, 1868. Was 8°. 39 p. [3]

— Right of suffrage. Speech in the House of Representatives, Jan. Wash., 1869. 8°. 16 p. [3]

— Thoughts on educational topics and institutions. Bost., 1859. *Author.*]

wditch, Henry Ingersoll. Memorial [of Nathaniel Bowditch]. Bost., 1865. sm. 4°. Portrait. [3, *Author.*]

ublic hygiene in America: centennial discourse before the International Medical Congress, Philadelphia, Sept., 1876. With extracts from correspondence from the various states, [and] a digest of American sanitary law, by H. G. Pickering. Bost., 1877. 8°. [3, *Author.*]

wditch, Nathaniel. *See* **Bowditch, H. I.**

ven, Francis. Gleanings from a literary life, 1838-80. N.Y., 1880. 8°. [1]

Contents.

Prefatory note on the contest between the ancients and the moderns. — Classical and utilitarian studies. — Appendix on the abuse of grammar. — Minority report on the silver question. — Perpetuity of national debt. — Financial conduct of the war. — Utility and limitations of the science of political economy. — Dualism, materialism, or idealism. — The idea of cause. — Latest form of the development theory. — Diseases and malformations not hereditable. — Psychical effects of etherization. — Buckle's History of civilization. — J. S. Mill's Examination of Sir W. Hamilton's philosophy. — The human and the brute mind. — Malthusianism, Darwinism, and pessimism. — Blaise Pascal. — The Oxford clergymen's attack on Christianity. — Restoration of the text of Shakespeare.

vman, Selwyn Zadock. Speech in the House of Representatives, May 10, 1879. Wash., 1879. 8°. 14 p. [3]

'd, A. C. The merchant shipping laws; being a consolidation of all the merchant shipping and passenger acts, 1854-76. Forming a complete treatise on maritime law. Lond., 1876. 8°. xxviii, 642 p. [1]

lston, *Mass.* Report of the assessors, 1868, 70. Worcester, 1868-70. 3°. [2]

nton, Edward C. History of West Point, and its military importance during the American revolution: and the origin and progress of the United States Military Academy. N.Y., 1863. 8°. Maps and illus. [1]

dford, A. W. Address at the dedication of the Antietam National Cemetery, Sept. 17, 1867. Balt., 1867. 8°. 23 p. [3]

dford, Andrew. *See* **Jones, H. G.**

dford, Martin L. Elevated railroads. Speech in the House of Representatives, March 17-18, 1881. Reported by G. C. Burpee. Bost., 1881. 8°. 27 p. [4]

dford, Samuel, *Jr.* Some incidents in the life of Samuel Bradford, Senior. Also, the autobiography of Samuel Bradford, Jr., to Jan. 1, 1879. Phila., 1880. 16°. 79, iv p. Portraits. [3, *Author.*]

dford, William. *See* **Pennsylvania Historical Society; — Wallace, J. W.**

dford directory. *See* **Haverhill.**

dford prayer book, The. Some account of "The book of common prayer," printed 1710, by W. Bradford, under the auspices of Trinity Church, N.Y. [Phila.], 1870. 12°. 10 p. [3]

dwell, James B. Reports of the decisions of the Appellate Courts of Illinois. Vol. 7-8. [1880]-81. Chicago, 1881. 2 v. 8°. [1]

intree directory. *See* **Quincy.**

ttle family. *See* **Harris, E. D.**

ttleboro, *Vt.* *See* **Burnham, H.**

ck, Charles. A table showing the range of the thermometer at Milton Centre, Mass., Jan., 1849-Jan., 1879. *n.p., n.d.* 1 sheet. [3, *Author.*]

ck, Samuel. *See* **Ingersoll, J. R.**

dif, L. Political eloquence in Greece. Demosthenes. With extracts from his orations and a critical discussion on the "Trial on the crown." Tr. by M. J. MacMahon. Chicago, 1881. 12°. Portrait. [1]

wing. *See* **Rueter, H. H.; — United States Brewer's Association.**

wster, Charles Warren. Rambles about Portsmouth, [1st series]. Portsmouth, 1859. 8°. [1]

lgeport, *Conn. Board of Education.* 4th-5th annual report, 1880-81. Bridgeport, 1880-81. 8°. [3]

Bridgewater, *Mass.* Annual report of the selectmen and oversee
for the year ending Feb. 28, 1859. Bost., 1859. 8°. [2]

— *See* **Hooper,** A.

Bridgewater directory. *See* **Brockton** directory.

Briggs, George Ware. An address before the city authorities in
the celebration of the birth-day of Washington, Feb. 22, 186
1862. 8°. 24 p. [1]

Briggs, Samuel. A partial record of the descendants of Walter
Westchester, N.Y. Cleveland, O., 1878. 4°. 50, (1) p. [1]

Briggs family. *See* **Briggs,** S.

Brigham Academy, *Bakersfield, Vt.* Exercises and addresses at th
of Brigham Academy, Aug. 14, 1879. With appendix. Andove
56 p. Portrait. [3]

Bright, John. A liberal voice from England. Speech at Rochda
1861, on the American crisis. N.Y., 1862. 8°. 13 p. [3]
From the Rebellion record, v. 3.

Brightly, Frederick Charles. A collection of leading cases on t
elections in the United States. With notes and references. P
l. 8°. xlvi, 781 p. [1]

Brinley, Francis. *See* **Bigelow,** T.

Bristol, *R.I.* *See* **Miller,** W. J.; — **Munro,** W. H.

Bristol County, *Mass.* Annual statement of the receipts & ex
of the county, for the year ending Dec. 31, 1868. Taunton, 1869

Bristol County directory, [1878. Vol. 5]. Compiled and publis
Dudley & Co. Bost., 1878. 8°. [1]

British almanac [and] Companion, 1881. Lond., [1880]. 12°. [1]

British Charitable Society. Constitution and by-laws, with a lis
bers and donors. Bost., 1880. 16°. 26, (2) p. [3, *D. M. Balfour,*

British Columbia. *Legislative Assembly.* Statutes, 4th session,
ment, 1881. Victoria, [1881]. l. 8 . [2]

— *Superintendent of Education.* 1st, 3d-4th, 7th, 9th annual repo
public schools, 1872, 74-75, 77-78, 79-80. Victoria, 1872-81. 8°. [

British Museum. *See* **Panizzi,** *Sir* A. (G. M.)

British quarterly review. Vol. 70-72. N.Y., 1879-80. 3 v. 8°. [1]

Brockton directory. Greenough's directory of Brockton, Bridgew
and West Bridgewater, 1880. Bost., 1880. 8°. [1]

Brodrick, George Charles. English land and English landlord
1881. 8°. [1]

Brookfield, *Mass.* [Petition of the inhabitants of Quaubauge for
township to be called Brookfield. 1673. Springfield, 1673.]
Heliotype. [3, *J. F. Pratt, Chelsea.*]

— Valuation and taxes, 1871-72. West Brookfield, Worcester, 1871-

Brookline, *Mass.* Treasurer's report of the receipts and expenditu
of the trustees of the public library and selectmen's report, *etc*
list of the taxes, and tax-payers. For the year ending Feb. 1, 1
66. Bost., 1859-66. 8°. [2]

— *Public Library.* 24th annual report of the trustees. Brookline, 1

Brookline directory. Greenough's directory of Brookline, 1879
6.] Brookline, [1879]. 8°. [1]

Brooklyn, *N.Y.* **Brooklyn Library.** Analytical and classed
Brooklyn, 1878-80. l. 8°. (4), 1110 p. [3]

Brooks, Charles Timothy, *editor.* The controversy touching the
mill in Newport, R.I. Newport, 1851. 18°. 91, (1) p. [1]

Brooks, Edwards. *See* **Lowell,** J. A.

Brooks, Erastus. Arnold, the American traitor; André, the B
Washington, the defender of constitutional liberty, *etc.* Add
the Historical and Forestry Society of Rockland County, [N.Y.
1881. N.Y., 1881. 8°. 34 p. [3]

wn, A. B. An essay on money and its relations to the fiscal policy of ations. N.Y., [1879]. 16°. 59 p. [1]

wn, David Paul. Eulogium on the life and character of Joseph Reed ngersoll, Sept. 28, 1869, at the hall of the University of Pennsylvania. hila , 1869. 8°. 40 p. [3]

wn, Francis Henry. The medical register for New England. Bost., 1877. °. [3]

wn, Guy A. Compiled statutes of Nebraska, 1881. *See* **Nebraska.** *egislature.*

ports, 1880. *See* **Nebraska.** *Supreme Court.* Report, v. 10.

wn, Henry C., *compiler.* The Philadelphia reports. Containing decisions ublished in the Legal intelligencer, 1875-76. Vol. 11. Phila., 1881. 8°. [1]

Vol. 1-10, compiled by H. E. Wallace.

wn, J. A. Reports of cases, 1879-80. *See* **Mississippi.** *Supreme Court.* eports, v. 57.

wn, John M. [Documents] relating to land taken by the Fitchburg Raiload Company from the estate of James Brown, Belmont, Mass. Bost., 881. 4°. 2 sheets. [3, *Author.*]

wn, Josiah. Reports of cases upon appeals and writs of error, in the igh Court of Parliament, 1701-79. Dublin, 1784. 7 v. 8°. [1]

wn, L. B Biographical sketches of the governor, councillors, and memers of the Senate and House of Representatives of the N.H. Legislature, r 1881-2. Vol. 1. Concord, 1881. 8°. 33 p. [3, *Author.*]

wn, Samuel Gilman. *See* **Hamilton College.**

wn, T. Edwin. Some reasons for the exemption of church property from axation. Rochester, N.Y., 1881. 16°. 49 p. [3, *Author.*]

wn, Theron. The Canton Baptist memorial, being a historical discourse, elivered before the Baptist Church in Canton, Mass., at the celebration f their 50th anniversary, June 22, 1864. Bost., 1865. 8°. Portraits. [1]

wn, William O. The fencing of railroads: a correspondence between W. . Brown and A. A. Burrage. Bost., 1880. 8°. 39 p. [3, *Author.*]

wne, George Morgan. The sinking-fund. 2d ed. Bost., 1880. 16°. 19 p. , *Author.*]

wne, J. H. Balfour. Water supply. Lond., 1880. 16°. [1]

wnlow, Richard, *and* **Goldesborough,** John. Reports of diverse choice ases in law, [1569-1624]. With directions how to proceed in many intriate actions, *etc.* Lond., 1651-52. 2 v. in 1. sm. 4°. [1]

Part 2 is by Brownlow and has the title "Reports: (a second part) of diverse famous cases law," *etc.*

el, *Sir* Marc Isambard. A new plan of tunnelling, calculated for openg a roadway under the Thames. *n.t.p.* [Lond., 18—.] 8°. 4 p. lates. [3]

swick. *Statistisches Bureau.* Zur Statistik des Herzogthums Braunhweig. *n.p.*, [186-]. 4°. 32 p. [3]

sels. Palais du Midi (The South Palace). Permanent international hibition for productions of arts, science, commerce and industry. Bruss, 1879. 4°. 16 p. [3]

ciété Malacologique de Belgique. Annales. Tome 12-13. 2e série, me 2-3 1877-78. Bruxelles, [1877-78]. 2 v. 8°. Plates. [3]

rocès-verbaux des séances. Tome 9. 1880. Bruxelles, [1880]. 8°. [3]

nt, J. E. The Southern question. The policy of conversion. An adess delivered before the Middlesex Club, [Jan. 22, 1881]. Boston, [1881]. . 16 p. [3]

nt, William Cullen. A discourse on the life, character and writings of ulian Crommelin Verplanck, before the New-York Historical Society, ay 17, 1870. N.Y., 1870. 8°. 60 p. [3]

Bryant, William Cullen, *continued*.

— Poetical works. Household ed. N.Y., 1880. 12°. [1]

— *and* **Gay**, Sydney Howard. Popular history of the United States.
Illus. N.Y., 1881. 1. 8°. [1]

This volume completes the work.

— *See* **Bellows**, H. W.

Buckham, Matthew Henry. What kind of an education shall w
those of our children who are going to be farmers? *n.p.*, [188–].
[3, *Author*.]

Buckingham, Joseph Tinker. Annals of the Massachusetts C
Mechanic Association, 1852–60. Supplement. *n.p.*, [1860]. 8°. [

Buckle, Henry Thomas. *See* **Huth**, A. H.

Buckminster, Lydia Nelson (Hastings). The Hastings memorial.
logical account of the descendants of Thomas Hastings of Wa
Mass, 1634–1864. Bost., 1866. 8°. [1]

Budington, William Ives. History of the First Church, Charlestow
lectures, with notes. Bost., 1845. 8°. Portrait. [2]

Buffalo, *N.Y.* *Superintendent of Public Schools.* 22d annual rep
Buffalo, 1859. 8°. [3]

— **Board of Trade.** The city of Buffalo and its surroundings, its
facilities, *etc.* Buffalo, 1880. 8°. 48 p. [3]

— **Central School.** Catalogue, 1874–75, including a history of th
Buffalo, 1874. 8°. 37, 29 p. [4]

— **Society of Natural Sciences.** Bulletin. v. 4, no. 1. Buffalo,
Plates. [3]

Builder and wood worker. Vol. 16. New series, v. 1. N.Y., 1880.

Building associations. *See* **Paine**, R. T., *Jr.*

Bullock, Alexander Hamilton. The centennial of the Massachuset
tution. Read at the semi-annual meeting of the [American Ant
Society, April 27, 1881. Worcester, 1881. 8°. 56 p. [3, *Author*.]

— Intellectual leadership in American history. An address before th
of Phi Beta Kappa, at Brown University, Providence, June
Worcester, 1875. 8°. 39 p. [3, *Author*.]

— The mechanic arts favorable to liberty and social progress. Addr
the Massachusetts Charitable Mechanic Association, Sept. 20, 18
1865. 8°. 28 p. [3, *Author*.]

— The relations of the educated man with American nationality.
before the literary societies of Williams College, Aug. 1, 186
1864. 8°. 32 p. [3, *Author*.]

For other addresses, *etc.*, *see* **Bible Society of Massachusetts**; — **Paris**
cans of Paris; — **Protestant Episcopal Church in the United**
Worcester. *City Council.*

Bunbury, William. Reports of cases in the Court of Exchequer,
Published by G. Wilson. [Lond.], 1755. f°. [1]

With MS. notes.

Bungay, George W. Off-hand takings; or, Crayon sketches of
men. With portraits. N.Y., [1854]. 12°. [1]

Contents.

Daniel Webster. — Henry Clay. — Edwin H. Chapin. — John Charles Fremon
Morris and N. P. Willis. — William H. Seward. — Edward Everett. — John P. Ha
Taylor. — John C. Calhoun. — Lewis Cass. — Charles C. Burleigh. — Henry Wa
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Lowell. — John Mitchell.

ıker Hill. *See* **Hunnewell, J. F.; — Winthrop, R. C.**

ıker Hill Monument Association. Proceedings, 57th annual meeting, June 17, 1880. With the address of F. W Lincoln. Bost., 1880. 8°. Portrait and map. [3]

bank family. *See* **Ridlon, G. T.**

gess, Ebenezer. Burgess genealogy. Memorial of the family of Thomas and Dorothy Burgess, Sandwich, 1637. Bost., 1865. 8°. Portraits. [1]

gess genealogy. *See* **Burgess, E.**

leigh, Charles. The genealogy of the Burley or Burleigh family of America. Portland, 1880. 8°. Portraits. [1]

ley *or* **Burleigh family.** *See* **Burleigh, C.**

lington, *Mass.* Valuation of the real and personal property, and record of taxes of the town for the year 1880. Woburn, 1881. 8°. [3]

lington, *Vt. Fletcher Free Library.* 2d-5th, 7th annual report. Burlington, 1876-81. 8°. [3]

Bulletin, no. 1-3. Books added, June, 1877-Feb., 1881. Burlington, 1878-81. 8°. [3]

Catalogue of the library. Burlington, 1877. l. 8°. (6), 661 p. [3]

uperintendent of Schools. Annual report, 1875, 77-81. Burlington, 1875-81. 8°. [3]

rnett, Peter H. Recollections and opinions of an old pioneer. N.Y., 1880. 12°. [1]

rnham, Henry. Brattleboro, Vt. Early history, with biographical sketches of its citizens. Ed. by A. M. Hemenway. Brattleboro, 1880. 8°. Portraits and illus. [1]

rnham, S. W. Report to the trustees of the "James Lick Trust" of observations made on Mt. Hamilton with reference to the location of Lick Observatory. Chicago, 1880. sm. 4°. 32 p. Maps. [3]

rritt, Elihu. *See* **Northend, C.**

rt, Nathaniel. Address [before the Historical Society of Pennsylvania], Feb. 12, 1875, on the Washington Mansion in Philadelphia. Phila., 1875. 8°. 35 p. [3]

tler, Benjamin Franklin. [Report on the] raising of money to be used in impeachment. *See* **United States.** *Congress.*

Revised statutes of New York, [1836]. *See* **New York.** *Legislature.*

Views in relation to the alleged electoral frauds in the late presidential election, [1876]. Wash., 1879. 8°. 24 p. [3]

See **Bland, T. A.; — Felt, C. W.**

tler Hospital for the Insane, *Providence, R.I.* Charter of the Hospital; proceedings, reports of trustees, &c. Providence, 1847. 8°. 36 p. [3]

Circular of the trustees. *n.t.p.* [Providence, 1847.] 4°. (2) p. [3]

Reports of the trustees and superintendent, 1849-50, 77-81. Providence, 1849-81. 8°. [3]

itterworth, H. In memoriam. [James Hervey Reed.] *n.p.*, [1880]. 16°. (4) p. [3, *Author.*]

itts, Frank B. My first cruise at sea and the loss of the iron-clad Monitor. Providence, 1878. sm. 4°. 23 p. (**Rhode Island Soldiers and Sailors Hist. Soc.** Personal narratives, no. 4.)

itts, Isaac. Brief reasons for repudiation; applicable to the war debts of all countries. Rochester, N.Y., 1869. 8°. [1]

Protection and free trade. N.Y., 1875. 12°. Portrait. [1]

Advocates free trade.

ıxton, Sydney C. A handbook to political questions of the day. Lond., 1880. 8°. [1]

Contents.

Church and state. — National education. — Reform. — Land laws. — Local self-government. — Intoxicating liquor laws. — Direct *v.* indirect taxation. — Reciprocity. — Capital punishment. — Flogging. — Marriage with deceased wife's sister. — Sunday opening of museums, *etc.* — Ireland.

yron, George Gordon Noël, *Baron.* *See* **Nichol, J.**

Cabot, John. *See* **Kidder,** F.

Caird, James. Prairie farming in America. With notes on Canad
United States. N.Y., 1859. 12°. [1]

Caldecott, Thomas. Reports of cases relative to the duty and offic
tice of the peace, 1776-85. Dublin, 1790. 8°. [1]

California. *Legislature.* Journal of the Assembly, 23d session,
[and] extra session, 1881. Sacramento, 1880-81. 2 v. 8°. [2]

— - Journal of the Senate, 23d session, 1880; 24th [and] extra sess
Sacramento, 1880-81. 2 v. 8°. [2]

— - Statutes and amendments to the codes, 24th session, 1881, and
sion, 1881. Sacramento, 1881. 8°. [2]

— *State Agricultural Society.* Transactions, 1863-73, 75-80. Sacrame
80. 13 v. 8°. [2]

— *Superintendent of Public Instruction.* 9th report, 1880. [Sacramen
8°. [2]

— *Supreme Court.* Reports of cases, 1879-80. G. H. Smith, report
54-55. San Francisco, 1881. 2 v. 8°. [2]

Callender, John. An historical discourse, on the civil and religio
of Rhode Island. With a memoir of the author, biographical no
by R. Elton. 3d ed. Bost., 1843. 8°. [1]

Another title-page reads " Early history of Rhode Island."

Calvert, George, *Lord Baltimore.* *See* **Mayer,** B.

Cambridge, *Mass.* Annual report of the receipts and expenditur
town, March, 1844. [Camb., 1844.] 8°. [2]

— Report of a committee relating to the West Boston and Canal brid
Cambridgeport, 1843. 8°. 7 p. [2]

— *City Council.* Act of the Legislature establishing a fire depar
Cambrige; rules and regulations for the government of the de
and a city ordinance for the prevention of fires. Camb.,
21 p. [3]

— - Cambridge in the "centennial." Proceedings, July 3, 1875, c
anniversary of Washington's taking command of the continental
Cambridge Common. [With a poem by J. R. Lowell, and addr
P. Peabody.] Camb., 1875. 8°. 97 p. Illus. [1]

— - Memorial to the men of Cambridge who fell in the first batt
revolutionary war. Services of dedication, Nov. 3, 1870. [
address of A. Mackenzie.] Camb., 1870. 8°. 40 p. [1]

— - The soldiers' monument in Cambridge. Proceedings in relati
building and dedication, 1869-70. [With the oration by A. Ma
Camb., 1870. 8°. Illus. [1]

— *Mayor.* Address upon the first organization of the city governm
4, 1846. Camb., 1846. 8°. 16 p. [2]

— *School Committee.* Regulations of the public schools, 1866. Ca
16°. 38 p. [3]

— *Water Works.* 10th-13th annual report of the water board, with t
of the registrar and superintendent, etc., 1874-77. Camb., 1875-7

— - Fresh Pond water. Measures proposed for the protection of t
of the water-supply of Cambridge. Bost., 1878. 8°. 55 p. [3]

— - [Report of a committee on the sources of pollution of the wate
Camb., 1877.] 8°. 11 p. [3]

— - Reports of the directors, 1857-61. With the act of incorpora
Camb., 1872. 8°. 63 p. [3]

— **First Church and Shepard Society.** Commemoration of the
versary of the settlement of John A. Albro, as pastor of the
Camb., 1860. 8°. 76 p. [2]

— **St. John's Memorial Chapel.** Consecration of St. John's
Chapel, Nov. 16, 1869, and sermon preached by Rev. M. Eastbur
1870. 8°. 44 p. [2]

Cambridge directory, 1849, 57, 59-60, 63-4, 81. Camb., Cambridgeport, Bost., 1849-81. 6 v. 16° and 8°. [1, and 3, *Augustus Russ, Boston.*]

Published by J. Ford, 1849, 57 (no. 9); by J. D. Baldwin, 1859; by Thurston, Miles & Pritchett, 1860; by G. Fisher, 1863-4; by W. A. Greenough & Co., 1880, (no. 30).

Cameron, Henry Clay. Reminiscences of Joseph Henry. *h.t.p.* [187-.] 13 p. [3, *Author.*]

Campbell, J. A. P. Revised code of Mississippi, 1880. *See* **Mississippi.** *Legislature.*

Campton, *N.H.* The centennial celebration of the town, Sept. 12, 1867. [Historical address by I. Willey.] Concord, 1868. 16°. [1]

— **Congregational Church.** *See* **Blakely,** Q.

anada. *Commissioner of Crown Lands.* Rapport du Commissaire des Terres de la Couronne, 1856. Toronto, 1857. 8°. [2]

— *Commissioners of Public Works.* Rapport des Commissaires des Travaux Publics, 1856. Toronto, 1857. 8°. [2]

— *Emigration Department.* Report of A. C. Buchanan, chief emigrant agent, 1855. [Toronto, 1855.] 8°. 32 p. [2]

— *Geological Survey, A. R. C. Selwyn, director.* Report of progress, 1878-79. Montreal, 1880. 8°. Maps and illus. [2]

— *Inspector-General's Office.* Comptes publics de la province, 1854. Québec, 1855. 8°. [2]

— *Parliament.* Acts, 3d session, 4th Parliament, 1880-81. Ottawa, 1881. 2 v. in 1. 8°. [2]

Prefixed are treaties with foreign powers, orders in council, *etc.*

— Correspondence and negotiations connected with the affairs of Nova Scotia. Ottawa, 1869. 8°. 71 p. [2]

— Extraits du rapport sur l'Exposition de Paris relativement aux produits du Canada. Toronto, 1857. 8°. 26 p. [2]

— Journals of the House of Commons. 3d session, 4th Parliament, 1880-81. Vol. 15. [Ottawa, 1881.] 8°. [2]

— Journals of the Senate, 3d session, 4th Parliament, 1880-1. Vol. 15. [Ottawa, 1881.] 8°. [2]

— Sessional papers, v. 10-11, 2d session, 4th Parliament, 1880, v. 13; v. 1-10, 3d session, 4th Parliament, 1880-81, v. 14. [Ottawa, 1880-81.] 12 v. 8°. [2]

See **Champlain,** S. de; — **Hurlbert,** J. B.; — **Lillie,** A.; — **Miles,** H., *Jr.*; — **Montreal. Société Historique de Montréal;** — **Morris,** A.; — **National Board of Trade.**

anals. *See* **Illinois.** *Canal Commissioners.*

andage, R. G. F. Boston Harbor. Facts and opinions relative to its extent, facilities and necessities, present and future. Bost., 1881. 8°. 22 p. [3, *Author.*]

annon, George Q. A review of the decision of the Supreme Court of the United States, in the case of Geo. Reynolds *vs.* The United States, 1879. Salt Lake City, 1879. 8°. v, 57 p. [3]

anton, *Mass.* Memorial services of Commemoration Day, May 29, 1880. Bost., 1880. 8°. 28 p. [3, *D. T. V. Huntoon, Canton.*]

The address was by T. E. Grover.

— Report of the committee on town seal, and report of the committee on naming the streets of Canton. Canton, 1881. 8°. 35 p. [3, *D. T. V. Huntoon, Canton.*]

— *See* **Ames,** E.

— **Baptist Church.** *See* **Brown,** T.

ape Cod. *See* **De Costa,** B. F.; — **Palfrey,** J. G.

apen, Nahum. Reminiscences of Dr. Spurzheim and George Combe: and a review of the science of phrenology to 1840. N.Y., 1881 [1880]. 12°. Portrait. [3, *Author.*]

Capital and labor. *See* **Godin,** J. B. A.; — **Jervis,** J. B.; — **Larne**
— **Nash,** J.

Carey, Matthew. Essays on banking. Philadelphia, 1816. 12°. [1]

Contents.

Letters to the directors of the banks of Philadelphia. — Letter to Mr. Calhou
for taxing the banks not paying specie. — Plan for the removal of the existing fi
culties. — Recapitulation of facts and arguments on banking. — Effects of the es
of the Bank of the United States. — Beneficial effects of the introduction of bank c

Carlisle, *Mass.* **First Parish.** *See* **Twiss,** J. J.

Carpenter, Kinsley. Names of the owners or occupants of buildi
town of Providence, [R. I.], 1749–71. Providence, 1870. 12°. 25 p

Carpenter, Matthew H. Speech vindicating the constitution of the c
to investigate the sale of arms by the War Department, and re
Sumner's attack on Pres. Grant, in the Senate of the United Sta
3, 1872. Wash., 1872. 8°. 31 p. [3]

Carruth, William Ward. The descendants of John Carruth,
Bost., 1880. 8°. 12 p. [3, *Author.*]

Carruth family. *See* **Carruth,** W. W.

Carter, A. History of the parish and town of Berlin, [Mass.]. W
1878. 16°. 40 p. [1]

Carter, Hosea Ballou, *compiler.* New Hampshire official roster,
epitome of official succession for two centuries. East Hampste
24°. Portrait and map [1]

Carter, Samuel. Reports of several special cases in the Court of
Pleas, [1664-76], in the time when Sir O. Bridgman sate Chie
there. Lond., 1688. f°. [1]

Carthage. *See* **Smith,** R. B.

Carver, Jonathan. *See* **Minnesota Historical Society.**

Case, Ervin T. Battle of the Mine. Providence, 1879. sm. 4°. 37 p.
Island Soldiers and Sailors Hist. Soc. Personal narratives,

Cases in the Court of King's Bench, in the 7th, 8th, 9th, and 10th
George II. during which time Lord Hardwicke presided, [1733-38]
some determinations of Chief Justice Lee; and also two equit
Lord Chancellor Hardwicke. 2d ed., with notes and referenc
Lee. Lond., 1815. 8°. [1]

Attributed to Lord Annaly.

Cattle. *See* **American Convention of Cattle Commissioners.**

Cedar Creek. *See* **Crowninshield,** B. W.

Cedar Lake, *Ind.* *See* **L.,** Y. N.

Central American treaty. *See* **Everett,** E.

Central Park, *N.Y.* *See* **New York,** *City.* *Board of Commission*
Central Park.

Centz, P. C., *pseud.* *See* **Sage,** B. J.

Cernuschi, Henri. Monetary diplomacy in 1878. Lond., 1878. 8°.
Hamilton A. Hill, Boston.]

Chadwick, French E. Report on the training systems for the navy
cantile marine of England. *See* **United States.** *Department of*

Chamberlin, Walter. Vincentown, [N.J.], and its churches. *n.*
8°. 27 p. [3, *W. C. Sharpe, Seymour, Conn.*]

Champlain, Samuel de. Voyages. Tr. from the French by C
With historical illustrations and a memoir by E. F. Slafter. Vol
1635. Bost., 1880. sm. 4°. Maps and portraits. (**Prince Soc.**

Champlin, James Tift. A historical discourse at the 50th anni
Colby University, Aug. 2, 1870. Waterville, 1870. 8°. 30 p. [3]

Chancellorsville, *Va.* *See* **Dodge,** T. A.

Chandler, Charles H. A history of the Theological Society of D
College. Read before the Society, June 1, 1868. Hanover,
24 p. [1]

andler, Peleg Whitman. Memoir of John Albion Andrew. Reprinted from the Proceedings of the Massachusetts Historical Society, April, 1880. Camb., 1880. 8°. 32 p. [3, *Author.*]

Same. Added, two hitherto unpublished discourses, and the valedictory address. Bost., 1880. 16°. Portrait and illus. [1]

The discourses are the "Oration before the Athenæan Society of Bowdoin College, Sept., 1844," and the "Address at the Maine Female Seminary, July, 1859."

anning, George G. Early recollections of Newport, R.I., 1793-1811. Newport, 1868. 16°. [1]

anning, William Ellery. *See* **Peabody, E. P.**

apman, Frederick W. The Trowbridge family, or the descendants of Thomas Trowbridge of New Haven, Conn. Compiled at the request of T. R. Trowbridge. New Haven, 1872. 8°. Portraits. [1]

apman, Oliver Smith. *See* **Huntoon, D. T. V.**

aritable endowments. *See* **Kenny, C. S.**

arities. *See* **Conference of Charities; — Great Britain.** *Charity Commission; —* **Paine,** R. T., *Jr.*

harlestown, *Mass.* List of persons taxed for city and county for 1847. Added, the treasurer's statement of receipts, expenditures, &c., for year ending Feb. 29, 1848. Charlestown, 1848. 8°. [2]

— *City Council.* Municipal register. Charlestown, 1856. 8°. [2]

– — An ordinance establishing a fire department in Charlestown, 1859. Charlestown, 1860. 8°. 12 p. [2]

– — Rules and orders of the city council, and a list of the officers of the city for 1847. Charlestown, [1847]. 16°. [2]

— *Mayor.* Address, Oct. 7, 1847, at the laying of the corner-stone of a building for a high school on Monument Square. Charlestown, 1847. 8°. [2]

– — Address of T. T. Sawyer, Jan. 1856-57; of J. Dana, Jan. 1860; of H. G. Hutchins, 1861; of L. Hull, 1867. Charlestown, 1856-67. 8°. [2, 3.]

– — Communication from the Mayor [relating to the training field. Charlestown, 1847]. 8°. 8 p. [2]

– — Inaugural address, April 26, 1847, upon the first organization of the city government. Charlestown, 1847. 8°. 26 p. [2]

— *Public Library.* Report of the trustees, 1861-62. Charlestown, 1861-63. 8°. [2, 3.]

— *School Committee.* Majority and minority reports, May 24, 1848, upon the petition of W. Eager and others for a separation of the sexes in the Harvard School. Bost., 1848. 8°. 36 p. [2]

— *See* **Shattuck,** G. O.

— **First Church.** Records of the Church, 1632-1789. [Compiled by J. F. Hunnewell.] Bost., 1880. 4°. [3, *James F. Hunnewell, Charlestown.*]

– — *See* **Budington,** W. I.

harlestown, *R.I.* *See* **Tucker, W. F.**

harlton, Thomas M. P. Reports of cases in the Superior Courts of the eastern district of Georgia, [1805-10]. N.Y., 1824. 8°. [1]

harlton, *Mass.* Report of the selectmen and overseers of poor for the year ending March 4, 1861. Worcester, [1861]. 8°. [2]

hartism. *See* **Lovett,** W., *and* **Collins,** J.

hase, Philip S. Organization and service of Battery F., First Rhode Island Light Artillery, to Jan. 1, 1863. Providence, 1880. sm. 4°. 48 p. (**Rhode Island Soldiers and Sailors Hist. Soc.** Personal narratives, no. 3, 2d ser.)

hauncey, Nathaniel. *See* **Fowler, W. C.**

havero, Alfredo. Calendario Azteca, ensayo arqueologico. 2a ed. Mexico, 1876. sq. 8°. 47 p. [3]

heever family. *See* **Hassam, J. T.**

Chelmsford, *Mass.* Expenses of the town for the year ending Marc
March 1, 1861. [Lowell, 1841–61.] Broadsides. [3]

Chelsea, *Mass.* By-laws of the town, 1842, 53. Chelsea, 1853. 8°. [

— Mayor's address, 1st financial report, 1857, and the treasurer's rep
reports of departments, etc. Chelsea, 1858. 8°. [2]

— Schedule of the town accounts, 1847, 48; Annual report of the rec
expenditures for the year ending Feb. 15, 1849–51, 53, 55, 57. Bost
8°. [3]

— *City Council.* Roll of honor. A list of the soldiers and sailors w
on the quota of Chelsea in the civil war, 1861–65. Chelsea, 1880.

Chelsea and Revere directory, 1880. No. 17. Compiled by J. Sale.
[1879]. 8°. [1]

Cheshire, *Eng.* *See* **Record Society.**

Cheshire Railroad Company. 2d annual report of the directors.
[N.H.], 1847. 8°. [1]

Chester, Joseph Lemuel. The family of Dummer. [From the N
torical and genealogical register for July and Oct., 1881.] Comm
by E. E. Salisbury. [Bost., 1881.] 8°. 29 p. [3, *Prof. E. E. Salis*
Haven, Conn.]

Chester, *Pa.* *See* **Armstrong,** E.

Chicago, *Ill.* *Board of Education.* 15th-16th, 26th annual report, 1
Chicago, 1869–81. 3 v. 8°. [2]

— - Historical sketches of the public school system of Chicago to th
the school year 1878–79. By S. Johnston. Chicago, 1880. 8°. 79

Prepared as a supplement to the 25th annual report of the Board of Educatio

— *Common Council.* Charter and ordinances of the city, to Sept. 15,
acts of the General Assembly relating to the city, *etc.* Compil
W. and J. A. Thompson. Chicago, 1856. 8°. [2]

— *Department of Finance.* 20th annual statement of the financ
Chicago, 1877. 8°. [2]

— *Department of Public Works.* 1st–2d annual report, 1876–77. Chic
78. 2 v. 8°. [2]

— *General Superintendent of Police.* Report, 1876. Chicago, 1877. 8°.

— *Public Library.* 8th-9th annual report of the board of directors
Chicago, 1880–81. 8°. [3]

— *West Chicago Park Commissioners.* 3d annual report, 1872. Chica
8°. [2]

— *See* **Wright,** J. S.

Chicago Historical Society. A brief history of the Society, with
stitution, by-laws, and list of officers and members. Chica
8°. [3]

Chickering, Hannah B. *See* **Dexter,** S. E.

Chicopee directory. *See* **Springfield** directory.

Chicopee Falls directory. *See* **Springfield** directory.

Child, Linus Mason. "Shall the metropolis of New England hav
vated railway?" Argument before the legislative committee
railways on the petition of C. E. Powers and others, for an act of
ration for an elevated railway in Boston, Cambridge, Somer
Chelsea. Bost., 1879. 8°. 30 p. [3]

Children. *See* **Leonard,** *Mrs.* C. T.; — **Massachusetts.** *Dep*
Constable.

China. *See* **Martin,** W. A. P.; — **Our** commercial and political
etc.; — **United States.** *Bureau of Education.*

Chinese immigration. *See* **Seward,** G. F.

Choate, Charles F. The concluding argument in behalf of the
N. H. Railroad against the consolidation of the Fitchburg an
Railroads, delivered before the railway committee, March 18, 187
1873. 8°. 14 p. [3]

oate, Joseph H. Case of Gen. Fitz John Porter. Argument for petitioner. West Point, 1879. *n.p.*, [1879]. 8°. [3, *Gen. Fitz John Porter, Morrisiana, N.Y.*]

oate, Rufus. Application of S. D. Bradford and others, to set off wards six, seven and eight, of the city of Roxbury, as a separate agricultural town. Speech before the joint legislative committee on towns, Boston, April 4, 1851. Bost., 1851. 8°. 42 p. [3]

oir, M. Pioneer directory of the city of Seattle and King County; history, business directory, and immigrant's guide to Washington Territory and vicinity. Pottsville, Pa., 1878. 12°. Illus. [1]

olera. *See* **Providence.** *Superintendent of Health.*

ristianity. *See* **Gould, S. B.**

urch-building. *See* **Norton, C. E.**

urch property. *See* **Brown, T. E.; — Hill, H. A.**

cinnati. *Board of Education.* 51st annual report, 1880. [With] a handbook. Cincin., 1881. 8° [3]

Board of Trade and Transportation. 12th annual and 13th statistical report, 1881. Cincin., 1881. 8°. [3]

ndustrial Exposition of Manufactures, Products and the Arts. Rules and premium list of the 7th exposition, 1879. Cincin., 1879. 8°. 63 p. [3]

cinnati, Society of. *See* **Gardner, A. B.; — Massachusetts Society of the Cincinnati.**

es *and* **Towns.** *See* **Coulanges, F.** de; — **Illinois.** *General Assembly*; — **Parker, F. J.**

l service. *See* **Eaton, D. B.; — Foster, W. E.; — Howland, C. G.; — International Free Trade Alliance; — United States.** *Congress.*

l-Service Reform Association. By-laws. [N.Y., 1881.] 16°. (4) p. [3]

onstitution. [N.Y., 1881.] 16°. (4) p. [3]

ublications. No. 1–3. N.Y., 1881. 16°. [3]

Contents.

No. **1.** Purposes of the Association.
2. The beginning of the "spoils" system, 1829-30.
3. **Eaton,** D. B. The "spoils" system and civil service reform in the custom-house and post-office at New York.

lization. *See* **Mitchell, A.; — Rawlinson, G.**

pp, Otis. Letter to A. Lawrence and R. G. Shaw on the present condition and future growth of Boston. Bost., 1853. 8°. 16 p. [3]

rk, Charles C. P. The commonwealth reconstructed. N.Y., 1878. 8°. [1]

rk, George Faber. Who was the first minister of Mendon? *n.p.*, [1881]. 8°. 3 p. [3, *Author.*]

Reprinted from the N. England historical and genealogical register for April, 1881.

rk, Henry. Memorial address on the life and services of Rev. Pliny H. White, before the Vermont Historical Society, Oct. 19, 1869. Montpelier, 1869. 8°. 15 p. [3]

rk, Joseph Sylvester. An historical sketch of Sturbridge, Mass. Brookfield, 1838. 8°. 48 p. [1]

rk, William H. The soldier's offering. [Reminiscences of the 34th regiment Mass. volunteer infantry and original poems, *etc.*] Bost., 1875. 12°. 76 p. [3, *Author.*]

rke, James Freeman. On giving names to towns and streets. Bost., 1880. 16°. 19 p. [1]

Self-culture: physical, intellectual, moral, and spiritual. 4th ed. Bost., 1880. 16°. [1]

rke, Samuel F. Centennial discourse, Sept. 9, 1850, before the First Church and Society in Athol, [*Mass.*]. Bost., 1851. 8°. 95 p. [1]

rke Institution for Deaf-Mutes at Northampton. 13th annual report, 1880. Northampton, 1880. 8°. [3]

Clay, Henry. *See* **Winthrop, R. C.**

Clayton family. *See* **Rylands, J. P.**

Clearing houses. *See* **Bailey, D. P.**

Cleveland, James Butler. A genealogical register of the descen Moses Cleveland of Woburn, Mass., 1635, with a sketch of the Cl of Virginia and the Carolinas. Albany, 1881. 8°. 48 p. [3, *Auth*

Cleveland family. *See* **Cleveland, J. B.**

Cleveland, *Ohio. Board of Education.* 35th, 38th-39th, 42d annua 1871, 74-75, 78. Cleveland, 1872-79. 4 v. 8°. [3]

Clifford, William Henry. Reports of cases in the Circuit Cou United States for the 1st circuit, 1869-78. By N. Clifford. Vol. 1880. 8°. [1]

An appendix contains proceedings of the bench and bar upon the decease of Hon Robbins Curtis.

Clinton, *Mass.* Reports of selectmen, treasurer, overseers of poor, mittees for the year ending March, 1853; Report of expenses, Ma Clinton, 1853-54. 8°. [3, *John P. Dame, Clinton.*]

— Valuation and taxes, 1874. Clinton, 1874. 8°. [3, *John P. Dame, C*

Clinton directory. Goodnow's pocket directory of Clinton, fo Clinton, 1880. 24°. 96 p. [1]

Clubb, Henry S. The Maine liquor law: its origin, history and including a life of Hon. Neal Dow. N.Y., 1856. 12°. Port map. [1]

Clute, John J. Annals of Staten Island, [N.Y.]. N.Y., 1877. 8°. [1

Cobbe, Frances Power. The duties of women. Bost., 1881. 12°. [1]

Cobbett, William. Doom of the tithes. [With The origin and p the income of the church of Spain.] Lond., 1836. 12°. (**Pm.**, v.

Cochrane, W. R. History of Antrim, N.H., to 1877, with a genealo ord of Antrim families. Manchester, 1880. 8°. xxiv, 791 p. traits and illus. [1]

Coe, George S. Is resumption complete? Address before the Bankers' Association, Aug. 7, 1879. 3d ed. With the address Knox. N.Y., 1879. 32°. 52 p. [3]

Coffin, Charles Carleton. The future of New Hampshire. An addr the New Hampshire Press Association. Bost., 1881. 16°. 23 [3, *Author*]

Coffin, Joshua. A list of some of the descendants of Edward who settled at Newbury, Mass., 1635. Newburyport, 1855. 16°.

Cogswell, Leander Winslow. History of Henniker, N.H., 1735-188 genealogical register of families. Concord, 1880. 8°. 807, (1) p. [1]

Cohen, Solomon. Eulogy on the life and character of Stephen Ellio Georgia, and President of the Georgia Historical Society. S 1867. 8°. 18 p. [3]

Coins. *See* **Michels, I. C.**; — **Ward, D.**

Colby University (*formerly* **Waterville College**), *Waterville, Me.* of officers and students, 1848/9, 51/2, 53/4-58/9, 60/61-72/3; 54th-61 catalogue, 1873/4-80/1. Waterville, [1848]-81. 8°. [3]

The catalogue for 1873/4 is of the 2d edition.

— Catalogue of the library. Waterville, 1845. 8°. 47 p. [3]

— Catalogus senatus academici, et eorum qui munera et officia [1845, 54, 57, 75, 78]. Watervillæ, Portlandiæ, 1845-78. 8°. [3]

— Charter, with the acts and resolves relating thereto, and the by-la trustees. Portland, 1875. 8°. 32 p. [3]

— Laws of Waterville College. Waterville, 1851. 8°. 20 p. [3]

— *Same.* Laws of Colby University. Portland, 1880. 16°. 21 p. [3]

— Obituary record of graduates, 1822-70. Waterville, 1870. 8°. 66 p.

olby University, *continued.*

— *Same.* 1870-77. Supplement, no. 1-2. Waterville, 1873-77. 8°. [3]

— Report of the faculty of Waterville College, on the condition and wants of the institution, with the action of the trustees on the same, Dec. 18, 1855. Waterville, 1856. 8°. 36 p. [3]

— Services at the laying of the corner stone of the Memorial Hall, Aug. 14, 1867; and at the dedication of the same, Aug. 10, 1869. Waterville, 1869. 8°. 53 p. [3]

— *See* **Champlin, J. T.**

olenso, Frances Ellen, *and* **Durnford, Edward.** History of the Zulu war and its origin. Lond., 1880. 8°. Map. [1]

ollege of New Jersey, *Princeton, N.J.* Catalogue of the College, 1880-81. Princeton, 1880. 8°. [3]

olleges. *See* **American; — Hazeltine, M. W.; — Porter, N.; — Thurber, S.**

ollins, Patrick A. Petition for the incorporation of the town of Wellesley. Synopsis of the closing argument for the petitioners, Feb. 3, 1881. Bost., 1881. 8°. 20 p. [4]

olorado. *Legislative Assembly and General Assembly.* Council journal, 9th-11th session, 1872-76; Senate journal, 2d session, 1879. Central City, Denver, 1872-79. 4 v. 8°. [2]

— House journal, 9th, 11th session, 1872, 76; 2d session, 1879. Central City, Denver, 1872-79. 3 v. 8°. [2]

— Laws, 3d session, 1881. Denver, 1881. 8°. [2]

State Geologist. Biennial report, 1880. Denver, 1881. 8°. [3, *J. Alden Smith, Denver, Col.*]

Superintendent of Public Instruction. 2d biennial report, 1879-80. Denver, 1880. 8°. [2]

See **Fossett, F.; — Hayes, A. A.,** *Jr.*; **— Morrison, R. S.**

olt family. *See* **Rogers, C.**

olumbia Institution for the Deaf and Dumb. 7th, 9th, 11th-23d annual report, 1864, 66, 68-80. Wash., [1864]-80. 8°. [3]

The 11th report has an appendix containing the proceedings of the national conference of Principals of Institutions for the Deaf and Dumb, at Washington, May 12-16, 1868.

See also **National Deaf-Mute College.**

olvin, Sidney. Landor. N.Y., 1881. 12°. (**Morley, J.,** *ed.* English men of letters.) [1]

ombe, George. *See* **Capen, N.**

omberbach, Roger. Report of several cases in the Court of King's Bench at Westminster, [1685-99]. [Lond.], 1724. f°. [1]

With MS. notes.

ommerce. *See* **Association of Chambers of Commerce of the United Kingdom; — Bourne, S.; — Commercial** and financial chronicle; — **Levi, L.; — National Board of Trade; — New York Chamber of Commerce; — Smith, W. E.**

ommercial and financial chronicle and Hunt's merchants' magazine. Vol. 31-32. N.Y., 1880-81. 2 v. f°. [1]

ommercial associations. *See* **Hill, H. A.; — National Board of Trade.**

onant, Gilbert. New England feathered songsters. With a miscellaneous second part. Salem, 1879. 8°. [3, *Author.*]

oncord, *Mass.* *See* **Walker, J. B.**

oncord, *N.H.* **First Congregational Church.** Historical addresses, [by F. D. Ayer, and others], 150th anniversary of the church, Nov. 18, 1880. Concord, 1881. 8°. 71 p. [1]

oncord River. *See* **Abbott, J. G.**

onfederate States. *See* **Davis, J.**

Conference of Charities and Correction. Proceedings, 7th an ference, Cleveland, 1880. Ed. by F. B. Sanborn. Bost., 1880. *B. Sanborn, Concord.*]

Conflict of laws. *See* **Wharton, F.**

Congdon, Charles T. Reminiscences of a journalist. Bost., 1880. trait. [1]

Congregational churches. *See* **American Congregational Ass — American Congregational Union; — Congregational yea Felt, J. B.; — General Association of Connecticut; — Association of New Hampshire; — General Associatio Congregational Churches of Massachusetts; — General Co of Congregational Churches of Maine; — General Conf the Congregational Churches of Connecticut; — General tion of Congregational Ministers and Churches of Ve Punchard, G.; — Rhode Island Congregational Conf Worcester South Conference of Congregational Churches**

Congregational year-book, 1880. Bost., 1880. 8°. [1]

Issued under the sanction of the National Council of the Congregational Ch United States.

Congressional record: containing the proceedings and debates o Congress, 1st-2d session, [1879-80]. Vol. 9-10. Wash., 1879-80. 4°. [3, *Geo. F. Hoar, Worcester.*]

Conklin, W. J. Report upon the sanitary condition of the public Dayton, with special reference to the eyesight of the pupils. 1880. 8°. 32 p. [3]

Connecticut. *Agricultural Experiment Station.* Annual report, 1 Haven, 1881. 8°. [2]

— *Board of Agriculture.* 1st-2d, 7th, 14th annual report, 1866-67, 73 Hartford, 1867-81. 4 v. 8°. [2]

— *Board of Education.* Annual report, 1881. New Haven, 1881. 8°.

— *Bureau of Vital Statistics.* Registration report, 1878-79. New seri Hartford, 1879-80. 8°. [2]

— *General Assembly.* Acts and laws, Oct., 1805; May, Oct., 1806. 1805-06. 8°. [2]

— - Journal of the House of Representatives, January session, 18 ford, 1881. 8°. [2]

— - Journal of the Senate, January session, 1881. Hartford, 1881. 8

— - Public acts, 1881. Hartford, 1881. 8°. [2]

— - Public documents, 1881. Hartford, 1881. 8°. [2]

— - Public records of the colony of Connecticut, May, 1757-March, C. J. Hoadly. [Vol. 11.] Hartford, 1880. 8°. 2 p.l., 662 p. [2]

— - Public statute laws, as revised and enacted, May, 1821, with t the three subsequent sessions incorporated. [By S. P. Beers, T. L. Whitman] Hartford, 1824. 8°. [2]

— - [Public statute laws], May [and] Oct. session, 1818; May sess [May] session, 1832. *n.t.p.* [Hartford, 1818]-32. 8°. [2]

— - Special acts and resolutions, Jan. session, 1881. Hartford, 1881.

— - Special laws. Vol. 7-8. 1871-80. Hartford, 1880. 2 v. 8°. [2]

Vol. 8 contains a list of corporations organized under general laws.

— *Railroad Commissioners.* 4th annual report, 1856-7, with the annu of the railroad corporations, 1856. New Haven, 1857. 8°. [2]

— *State Board of Health.* 2d-3d annual report, 1879-80. Hartfor 2 v. 8°. [2]

— *Supreme Court of Errors.* Connecticut reports, [1879-80]. Vol. Hooker. Hartford, 1881. 8°. [3]

— *See* **Trumbull, J. H.**

necticut and Passumpsic Rivers Railroad Company. Copy of an agreement [with] the connecting roads for the extension of the Passumpsic Railroad to the Canada line. Bost., 1855. 8°. 8 p. [1]

necticut register; a state calendar of public officers and institutions for 1881. [No. 91.] Hartford, [1881]. 18°. [1]

necticut River Railroad Company. 36th annual report, 1880. Springfield, 1880. 8°. [3]

nelly, Pierce. Reasons for abjuring allegiance to the see of Rome. A letter to the Earl of Shrewsbury. 1st Amer. ed. Phila., 1852. 8°. 38 p. (Pm., v. 118.) [1]

over, George S. Early history of Geneva, (formerly called Kanadesaga), [N.Y.]. From the Geneva Courier, March, 1879. [With an address before the Waterloo Library and Historical Society, Dec. 22, 1879.] Geneva, [1879]. 8°. 47, (1) XII, 12 p. [3, *Author.*]

over, O. M. Reports of cases, 1880–81. *See* **Wisconsin.** *Supreme Court.* Reports, v. 49-50.

stitutional law. *See* **Parker,** J.; — **Subjects,** *etc.*

stitutional liberty. Part 1. Social rights and principles. [*Anon.*] Glasgow, 1880. 8°. [1]

temporary review. Vol. 37-39. Lond., 1880-81. 3 v. 8°. [1]

way, *Mass.* Annual report of the selectmen for the year ending March, 1862–63. *n.p.*, 1862–63. 8°. [3]

k, Joseph. Boston Monday lectures. Socialism, with preludes on current events. Bost., 1880. 12°. [1]

kery. *See* **United States.** *Department of War.*

per, H. Stonehewer. Coral lands. With illus. Lond., 1880. 2 v. 8°. [1]

per, Peter. Good government. Appeal to legislators, editors, religious teachers, *etc.* N.Y., 1880. 8°. 48 p. Portrait. [3, *Author.*]

-operation. *See* **Barnard,** C.

pe, Gilbert. Genealogy of the Dutton family of Pennsylvania, preceded by a history of the family in England to 1669; with a short account of the Duttons of Conn. West Chester, Pa., 1871. 8°. [1]

ppée, Henry. History of the conquest of Spain by the Arab-Moors. Bost., 1881. 2 v. sm. 8°. [1]

ppinger, William. The opening of a world. [The development of Africa. *Anon.*] Wash., 1881. 16°. 16 p [3]

pyright. *See* **Drone,** E. S.; — **Morgan,** A.

ral lands. *See* **Cooper,** H. S.

rals. *See* **Hall,** J.

rn. *See* **Goessmann,** C. A.; — **Torrens,** R.

rn laws. *See* **Fitzwilliam,** C. W. F., *Earl.*

rnell University, *Ithaca, N.Y.* Register and catalogue, 1879/80. Ithaca, 1880. 16°. [3]

rnwallis, Charles, *Marquis.* *See* **Johnston,** H. P.

rnwallis, Kinahan. The Gold Room, and the New York Stock Exchange and Clearing House. N.Y., [1878]. 8°. 58 p. (Atlas series, no. 8.) [1]

roners. *See* **Dietzsch,** E.

rporations. *See* **Dyer,** I. W., *compiler*; — **Thompson,** S. D.

rtland, *N.Y.* The Cortland normal school controversy, Dec. 16, [1868]-Dec. 1, 1880. Syracuse, 1880. 8°. 92 p. [3]

ssa, Luigi. Guide to the study of political economy. Tr. from the 2d Ital. ed. With a preface by W. S. Jevons. Lond., 1880. 16°. [1]

tton. *See* **United States.** *Census Office.*

tton Planters' Convention. Memorial of the convention at Greenville, Miss., and the response thereto of the Louisville Board of Trade. Louisville, 1879. 8°. 10 p. [3]

Coulanges, Fustel de. The ancient city: a study on the religion, l institutions of Greece and Rome. Tr. from the latest French e Small. 3d ed. Bost., 1877. 8°. [1]

Coulson, H. J. W., *and* **Forbes,** Urquhart A. The law relating t sea, tidal and inland. Lond., 1880. 8°. xxv, (1), 748 p. [1]

Coutts family. *See* **Rogers,** C.

Cox, *Sir* George William, *and* **Sankey,** Charles, *editors.* Epochs o history. N.Y., [1880-81]. 2 v. 16°. Maps.

Namely.

Benjamin, S. G. W. Troy. **Smith,** R. B. Rome and Carthage.

Cox, Sandford C. Recollections of the early settlement of the Valley. Lafayette, [Ind.], 1860. 8°. [1]

Cozzens, Issachar, *Jr.* A geological history of Manhattan or Ne Island, with a map of the island. N.Y., 1843. 8°. Plates. [1]

Crane, Cephas B. Bi-centenary commemoration, March 21, 1880, o opening of the first Baptist meeting-house in Boston, after its d been "nailed up" by order of the Governor and Council of Massa March 8, 1680. Historical discourse, with other exercises. Bost , 27 p. [3, *Author.*]

Crawford, J. B. The Credit Mobilier of America, its origin and his work of constructing the Union Pacific Railroad and the relation bers of Congress therewith. Bost., 1880. 8°. [1]

Crawford, Thomas. *See* **Osgood,** S.

Credit Mobilier. *See* **Crawford, J. B.;—Hazard, R.**

Crime. *See* **Farrer,** J. A.

Crimea. *See* **Kinglake,** A. W.

Criminal law. *See* **Bishop,** J. P.;—**May, J. W.**

Crosby, Nathan. Eulogy on Hon. Tappan Wentworth, munificent Dartmouth College, delivered before the Association of the Alum 1876. Lowell, 1877. 8°. 26 p. [3, *Author.*]

—The first half century of Dartmouth College. Hanover, 1876. 8 [3, *Author.*]

Read before the Alumni at the commencement in 1875.

—Memoir of Hon. Samuel Sumner Wilde. Concord, N.H., 1881. 8 [3, *Author.*]

Read at Dartmouth Commencement, June, 1880.

—Reminiscences of distinguished men of Essex County, [Mass.]. 1880. 8°. 29 p. [3, *Author.*]

From the Historical collections of the Essex Institute, v. 17, part 2.

Crowninshield, Benjamin William. The battle of Cedar Creek, 1864. A paper read before the Massachusetts Military Historical Dec. 8, 1879. Camb., 1879. 8°. 36 p. Plan. [3, *Author.*]

Crystal Palace, *N.Y.* *See* **Greeley,** H.

Cuba before the United States. Remarks on Sumner's speech at the lican Convention of Massachusetts, 22d Sept., 1869 Adopted proved by the Central Republican Junta of Cuba and Porto Rico 1869. 8°. 39 p. [1]

Cubas, Antonio Garcia. The republic of Mexico in 1876. Tr. by G. derson. Illus. Mexico, [1881] 8°. [1]

Cudmore, P. The Le Sueur litany, for Doran-Le Sueur ring, Minne satire. [N.Y., 188-.] 16°. xvi p. [3, *Author.*]

—President Grant and political rings. A satire. N.Y., 1880. 16°. [3, *Author.*]

Cumberland, Army of the. *See* **Society of the Army of the C land.**

Cunningham, Robert O. Notes on the natural history of the S Magellan and west coast of Patagonia, made during the voyage of "Nassau," 1866-69. With map and illus. Edin., 1871. 8°. [1]

ency. *See* **Backus,** C. K.; — **Coe,** G. S.; — **Enderby,** C.; — **Gallatin,**
. A.) A.; — **Groesbeck,** W. S.; — **Horton,** S. D.; — **Knickerbocker,**
eud.; — **Langley,** E.; — **Smith,** S.; – **Stearns,** G. L.; — **Thornton,** H.;
Varnum, J. M.; — **Ward,** D.; — **Webster,** D.

iden, Samuel W. Our soldiers and sailors. *See* **Veterans' National**
ommittee.

s, Benjamin Robbins. Jurisdiction, practice, and peculiar jurisprudence
the courts of the United States. Ed., with notes, by G. T. Curtis and
. R. Curtis. Bost, 1880. 16°. [1]

ing, Caleb. Outlines of the life and public services, civil and military,
William Henry Harrison. Bost., 1840. 18°. 71 p. Portrait. [1]

ing, Charles W. True womanly nobility. A class sermon before the
aduating class of Lasell Female Seminary, May 28, 1871. Bost., 1871.
. 21 p. [3]

ing, John. An half century sermon, at Ashburnham, Nov. 3, 1818.
orcester, 1818. 8°. 23 p. [2]

er, Samuel. *See* **Gray,** J. M.

er, Daniel Bateman. History of Jaffrey, N.H., 1749-1880; with a genea-
gical register of Jaffrey families, and the proceedings of the centennial
lebration, 1873. Concord, 1881. 8°. 648, (1) p. Portraits, map and
lus. [1]

ota. *Auditor and Treasurer.* Biennial reports, 1880. Yankton, 1881.
. [2]

islative Assembly. Laws, 14th session, 1881. Yankton, 1881. 8°. [2]

y, W. B. On the educational treatment of incurably deaf children.
ond., [1880]. 8°. 15 p. [1]

vers. Directory of Danvers, Marblehead, Peabody, Beverly, Manches-
r, Essex, Wenham, Topsfield. No. 3. By D. Dudley & Co. Bost., 1877.
. [1]

te Lunatic Hospital. *See* **Gaston,** W.

moor prison. *See* **Andrews,** C.

mouth, *Mass.* *See* **Ricketson,** D.

rst Christian Church. *See* **Andrews,** S. M.

mouth College, *Hanover, N.H.* Catalogue of officers and students,
71/72, 75/6-80/81. Bost., Hanover, 1871-80. 8°. [2]
illed "Catalogue of Dartmouth College and the associated institutions," 1879/80, 80/81.

ss of alumni, 1813: with biographical notices of the members. Bost.,
54. 8°. 100 p. [3, *J. B. F. Osgood, Salem.*]

morials of judges recently deceased, graduates of Dartmouth College.
oncord, 1881. 8°. [1]

Contents.

Crosby, N. Samuel Sumner Wilde. — **Bingham,** H. Andrew Salter Woods. — **Nes-
ith,** G. W. Matthew Harvey. — **Smith,** I. W. William Henry Bartlett. — **Gordon,** A.
Richard Fletcher. — **Bell,** C. H. Ira Perley. — **Sargent,** J. E. Joel Parker. — **Vea-
ey,** W. G. Isaac Fletcher Redfield. — **Peters,** J. A. Jonas Cutting. — **Patterson,** J. W.
ther Shepley. — **Clark,** D. George Foster Shepley.

iennial catalogue, [1873]; General catalogue, [1880]. Hanover, 1873-80.
° and l. 8°. [2]

Chandler, C. H.; — **Crosby,** N.; — **Shirley,** J. M.

win, Charles (Robert) *and* Francis. The power of movement in plants.
With illus. N.Y., 1881. 12°. x, 592 p. [1]

ler, C. F. W. Compiled laws of Kansas, 1879. *See* **Kansas.**

idson, J. Morrison. Eminent English liberals in and out of Parliament.
ost., 1880. 12°. [1]

Contents.

William Ewart Gladstone. — John Bright. — Peter Alfred Taylor. — Sir Charles Wentworth
ilke. — Joseph Cowen. — Sir Wilfred Lawson. — Henry Fawcett. — Joseph Chamberlain. —
homas Burk. — Henry Richard. — Leonard Henry Courtney. — Anthony John Mundella. —
harles Bradlaugh. — John Morley. — Robert William Dale. — Joseph Arch. — Edward Spen-
er Beesly. — Charles Haddon Spurgeon. — James Beal. — Moncure Daniel Conway. — James
llanson Picton. — Frederick Augustus Maxse. — The Hon. Auberon Herbert. — Edward
ugustus Freeman.

Davies, James (?) A relation of a voyage to Sagadahoc, [Me., 1607
printed from the original manuscript in the Lambeth Palac
Ed. with preface, notes, *etc.*, by B. F. De Costa. Camb., 1880
[1]

Davis, A. History of New Amsterdam; or, New York as it was i
of the Dutch governors. With papers on the American revol
on Philadelphia in the times of William Penn. Illus. [N
16°. [1]

Davis, Charles Henry. Telegraphic determination of longitudes c
coast of South America, 1878–79. *See* **United States.** *Burea*
gation.

Davis, Jefferson. The rise and fall of the Confederate governme
1881. 2 v. 8°. Portraits and maps. [1]

Davis, John. An address at the dedication of the town hall,
Mass, 2d May, 1825. Worcester, [1825]. 8°. 36 p. [2]

Davis, Josiah Gardner. Historical discourse at Amherst, N.H., or
anniversary of the dedication of the Congregational Meet
With sketches of Souhegan West, by A. Heald, S. H. Keel
Towne, and D. F. Secomb. Concord, N.H., 1874. 8°. [1]

Dawes, William. *See* **Holland, H. W.**

Dawson, Henry Barton. The sons of liberty in New York. A
before the New York Historical Society, May 3, 1859. [Poug
1859. 8°. [3]

Day, Joseph M. *See* **Massachusetts.** *General Court.*

Day, Thomas. Public statute laws of Connecticut, [1824]. *See* **Co**
General Assembly.

Dayton, *Ohio. Board of Education.* Dayton public schools. Ann
1879-80. Dayton, 1880–81. 2 v. 8°. [3]

— *See* **Conklin, W. J.**

Deaf and dumb. *See* **American Asylum at Hartford for th
tion and Instruction of the Deaf and Dumb; — American
ors of the Deaf and Dumb; — Arkansas.** *Deaf-Mute I*
**Clarke Institution for Deaf-Mutes; — Columbia Instituti
Deaf and Dumb; — Dalby,** W. B.; — **Italy.** *Direzione dell*
Generale; — **Michigan Institution for the Education of
and Dumb and the Blind; — National Deaf-Mute Colle
England Industrial School for the Education and Instr
Deaf-Mutes at Beverly; — Principals of Institutions for
— Rhode Island School for the Deaf.**

De Costa, Benjamin Franklin. Cabo de Baxos, or The place of C
the old cartology, with notes on the neighboring coasts. N.Y.,
13 p. Map. [3, *Author.*]

Revised from the New-England historical and genealogical register, Jan., 1

— Inventio fortunata. Arctic exploration with an account of N
Lynn. N.Y., 1881. 8°. 36 p. [3, *Author.*]

Read before the American Geographical Society, May 15, 1880.

— Notes of the anniversary sermon preached in the Church of St.
Evangelist, Wainwright memorial, New York City, May 15, 188
1881. 24°. 20 p. [1]

— William Blackstone in his relation to Massachusetts and Rho
N.Y., 1880. 12°. 24 p. [3, *Author.*]

Dedham, *Mass.* Report of the committee of investigation of th
tures on roads in Dedham, for the last six years. Dedham
21 p. [3]

— *See* **Hill, W. F.**

— **First Church and Parish.** *See* **Lamson, A.**

ham directory. *See* **Hyde Park.**

rfield, *Mass.* Finance report of the town, 1862-3, with list of Deerfield nen who have enlisted in the United States service. Greenfield, 1863. 8°.

ence of country banks; a reply to "An examination of the banking system of Massachusetts." [*Anon.*] Bost., 1831. 8°. 42 p. [1]

aware. *General Assembly.* Laws, 1845; adjourned session, Jan. 1864; pecial session, July, 1864; adjourned session, Oct., 1864. Dover, Wilnington, 1845-65. 8°. [2]

iperintendent of Free Schools. 5th annual report, 1880. Dover, 1881. °. [2]

aware Historical Society. Papers. 1-3. Wilmington, 1879-81. 8°. [3]

Contents.

1. **Bates,** D. M. Memorial address on the life and character of Willard Hall.
2. **Houston,** J. W. Address on the history of the boundaries of the state of Delaware.
3. **Mickley,** J. J. Some account of William Usselinx and Peter Minuit.

nocratic Party. *National Convention, Chicago,* 1864. Official proceedings. Chicago, 1864. 8°. 64 p. [3]

ational Convention, N.Y., 1868. Official proceedings. Reported by G. Wakeman. Bost., 1868. 1. 8°. [3, *Samuel A. Green, M.D., Boston.*]

ational Convention, Baltimore, 1872. Official proceedings. Bost., 1872. 8°. 1 p. [3, *S. A. Green.*]

ational Convention, St. Louis, 1876. Official proceedings. St. Louis, 1876. °. [3, *S. A. Green.*]

ational Democratic Committee. The campaign text-book. Why the people want a change. The Republican Party reviewed. N.Y., 1880. 8°. [3]

[Documents issued by the Democratic committee, presidential campaign of 1880. No. 1, 4-8, 11-15, 17-18, 22, and many others not numbered.] *v. p.,* [1880]. 8°. [3]

ational Executive Committee. Address to the Democracy and the people of the United States. Wash., 1860. 8°. 16 p. [1]

ee **Republican** or Democrat.

nosthenes. *See* **Brédif,** L.

is, Henry. Reports, 1880. *See* **Louisiana.** *Supreme Court.* Reports, v. 32.

ton, Daniel. A brief description of New York, formerly called New Netherlands. New ed., with introduction and notes by G. Furman. N.Y., 1845. 8°. 17, 57 p. (**Gowans,** W. Biblioth. Amer., 1.) [1]

ew, Chauncey M. Address at the unveiling of the statue of Alexander Hamilton, in Central Park, N.Y., Nov. 22, 1880. N.Y., 1880. 8°. 14 p. [3, *Author.*]

entennial of the capture of Major André. Oration at Tarrytown, Sept. 23, 1880. N.Y., 1880. 8°. 31 p. [3, *Author.*]

Peyster, Frederic. An address before the New-York Historical Society, on its 60th anniversary, Nov. 22, 1864, [on the early political history of New York]. N.Y., 1865. 8°. 76 p. [3]

ame. 69th anniversary, Jan. 6, 1874, [on William III. as a reformer]. N.Y., 1874. 8°. 36 p. Portrait. [3]

ame. 72d anniversary, Dec. 19, 1876, [on the representative men of the English revolution]. N.Y., 1876. 8°. 44 p. Portraits. [3]

biographical sketch of Robert R. Livingston. Read before the N. Y. Historical Society, Oct. 3, 1876. [With "An historical account of the application of steam for the propelling of boats," by R. R. Livingston.] N.Y., 1876. 1. 8°. 38 p. Portrait. [3]

he life and administration of Richard, Earl of Bellomont, Governor of New York, Massachusetts and New Hampshire, 1697-1701. Address before the New York Historical Society, at its 75th anniversary, Nov. 18, 1879. N.Y., 1879. 1. 8°. 59, (1), xvii p. Portraits. [3, *Author.*]

memoir of William Henry Guest, [superintendent of the Leake and Watts Orphan House, N.Y.]. N.Y., 1878. 1. 8°. 36 p. [3]

De Peyster, Frederic, *continued.*

— The moral and intellectual influence of libraries upon soci
Address before the New York Historical Society, on its 61st
Nov. 21, 1865. N.Y., 1866. 8°. 96 p. [3]

De Peyster, John Watts. Address, 28th Nov., 1866, Madalin,
Red Hook, N.Y., on the inauguration of a monument to her de
lost their lives in suppressing the slaveholders' rebellion. [
nual reports of the "Ulster Guard," 1862-65.] N.Y., 1867. 8°.

— The ancient, mediæval and modern Netherlanders; Dutch an
Poughkeepsie, [*cop.* 1859]. 8°. pp. 1-64. [3]

— Banner presentation and address. *See* **Grand Army of the**

— Description of medals presented by Oscar, King of Sweden
to J. W. De Peyster. With the letter in relation thereto. *n.*
6 p. [3]

— Practical strategy, as illustrated by the life and achievem
Austrian Field Marshal Traun. Catskill, 1863. 8°. 64 p. [3,

— Secession in Switzerland and in the United States compared
annual address, Oct. 20, 1863, before the Vermont State Histor
Montpelier. Catskill, 1863. 8°. 72 p. [3]

— State sovereignty. *n t p.*, [186–]. 8°. 8 p. [3]

— Winter campaigns; the test of generalship. [By Anchor, *ps*
1862. 12°. 24 p. [3]

Derby, *Conn.* *See* **Orcutt, S.,** *and* **Beardsley, A.**

Des Cars, Amédée J., *comte.* A treatise on pruning forest and
trees. Tr. from the 7th French ed. With an introduction,
gent. Bost., 1881. 12°. xiv, 65, (1) p. Illus. (**Mass. Soc. P**
Publ.) [1]

Detroit, *Mich.* *Board of Education.* 18th, 21st, 25th, 29th-32
annual report, [1860], 63, 67, 71-74, 76-80. Detroit, 1861-81. 8°.

Deutscher Verein für Öffentliche Gesundheitspflege.
Ausschusses über die 8e Versammlung des "Deutschen
Öffentliche Gesundheitspflege" in Gemeinschaft mit dem
Gesundheitstechnik" zu Hamburg, 13-15 Sept., 1880. Brauns
8°. [3]

Dewey, Richard S. Provision for insane criminals. Chicago, 18
[3]

Reprinted from the Chicago journal of nervous and mental disease, Oct.,

Dewhurst, William W. The history of Saint Augustine, Flo
1881. 12°. [1]

De Witt, E. L. Reports, [1878-80]. *See* **Ohio.** *Supreme Cou*
new series, v. 35.

Dexter, Sarah E. Recollections of Hannah B. Chickering.
16°. 50 p. [1]

Dice, Francis M. Reports, 1880. *See* **Indiana.** *Supreme Court o*
Reports, v. 71.

Dickens, John. Reports of cases in the High Court of Chancery
Revised by J. Wyatt. Lond., 1803. 2 v. 8°. [1]

Dickinson, John Woodbridge. Two premium essays. Oral t
proper limits and methods, by J. W. Dickinson. The proper
the free high schools, by H. H. Morgan. Bost., 1880. 16°. 4
John W. Dickinson, Boston.]

Dietzsch, Emil. "Crowner's quest." Three annual reports. C
8°. 64 p. [3]

Dillaye, Stephen D. The money and the finances of the Frenc
of 1789. Assignats and mandats: a true history. Including
tion of A. D. White's "Paper money inflation in France."
8°. 68 p. [1]

, J. S. The felsites and their associated rocks north of Boston. [Bost.,
0.] 8°. (16) p. [3, *Author.*]

From the Proceedings of the Boston Society of Natural History, v. 20.

, John F. Cases determined in the United States Circuit Courts for
8th circuit, [1878-79]. Vol. 5. Davenport, Iowa, 1880. 8°. [1]

mentaries on the law of municipal corporations. 3d ed., enlarged.
st., 1881. 2 v. 8°. [1]

, J. Lewis. *See* **Young,** E. J.

te family. *See* **Salisbury,** E. E.

ories. *See* **Attleboro ; — Bristol County ; — Brockton** (*including*
idgewater, East *and* **West Bridgewater) ; — Brookline ; — Cam-**
dge ; — Chelsea (*including* **Revere) ; — Clinton ; — Danvers** (*including*
rblehead, Peabody, Beverly, Manchester, Essex, Wenham,
psfield) ; — Dover, *N.H.* ; **— Essex County ; — Fall River ; — Fitch-**
rg ; — Gloucester ; — Haverhill (*including* **Bradford) ; — Holyoke**
luding **South Hadley Falls) ; — Hyde Park** (*including* **Dedham** *and*
rwood) ; — Lawrence (*including* **Methuen** *and* **North Andover) ; —**
ominster ; — Lowell ; — Lynn ; — Maine ; — Malden (*including* **Med-**
rd, Melrose *and* **Everett) ; — Manchester,** *N.H.* ; **— Marlboro ; —**
ddlesex County ; — Milford ; — Nantasket ; — New Bedford ; —
w England ; — New York, *City* ; **— New York,** *State* ; **— Newbury-**
rt ; — Newton (*including* **Waltham** *and* **Watertown) ; — Northamp-**
; — Plymouth ; — Quincy (*including* **Weymouth** *and* **Braintree) ;**
Roxbury ; — Salem (*including* **South Danvers) ; — Somerville ; —**
unton ; — Troy and Albany County, *N.Y.* ; **— Wakefield** (*including*
oneham, Reading, *and* **Saugus) ; — Waltham** (*including* **Water-**
vn) ; — Worcester ; — Worcester County.

ct of Columbia. *Board of Trustees of Public Schools.* 3d, 5th-6th
ort, 1876-77, 78-80. Wash., 1880-81. 8°. [2]

rd of Trustees of Public Schools, and Superintendent of Colored Schools of
shington and Georgetown. Annual report, 1873-74. Wash., 1875. 8°. [2]

See also **Washington,** *D.C. Board of Trustees of Public Schools.*

eme Court. *See* **MacArthur,** A. Reports, 1877-79.

e. *See* **Woolsey,** T. D.

ohn Adams. *See* **Paris. Americans of Paris.**

John Ross. A hand-book of Newport, and Rhode-Island. [*Anon.*]
wport, 1852. 12°. [1]

l loiterings, and visits in the vicinity of Boston. [By a looker-on.
on.] Bost., 1845. 12°. [2]

Lady Florence C. Across Patagonia. With illus. Lond., 1880. 8°. [1]

ll, George Basil. The premises of free trade examined. From the
lletin of the National Association of Wool Manufacturers. Camb.,
1. 8°. 36 p. [3, *Author.*]

, George Bartlett. Memoir of Dr. Doane. *h.t.p.* [184-.] 8°. 8 p.
trait. [3]

, Allen Washington. *See* **Dodge,** M. A.

, Arthur P. A sketch of the life of the Hon. Phinehas Adams, of
nchester, N.H. Bost., 1880. 8°. 24 p. Portrait. [1]

, John W. History of the First Congregational Church, Yarmouth,
ss., in a discourse delivered Jan. 26, and Feb. 2, 1873. Yarmouthport,
. 8°. 59 p. [3]

, Mary Abigail. Divine guidance. Memorial of Allen W. Dodge. By
l Hamilton, [*pseud.*]. N.Y., 1881. 12°. Portraits [1]

, Theodore A. The campaign of Chancellorsville. Bost., 1881. 8°.
ps. [1]

, William E. The church and temperance. A paper read before the
-Presbyterian Council in Philadelphia, Sept. 29, 1880. N.Y., 1880. 16°.
. [3]

Dorchester, Daniel. The problem of religious progress. N.Y., 1

Dorchester, *Mass.* [Census of persons between the ages of 4 a
and list of births in the town, May, 1847–May, 1848. Dorch
Broadside. [2]

— Taxable valuation of the polls and estates and amount of t
Bost., 1850-61. 8°. [2]

— *See* **Harris,** B. W.

— **First Church and Parish.** Proceedings of the 250th annive
gathering in England, departure for America, and final settlem
England, March 28 and June 17, 1880. [Compiled by S. J
Bost., 1880. 8°. [1]

— **Second Church.** Sermon and addresses commemorative of th
versary of the ordination of Rev. James H. Means as pastor of
Church, Dorchester, July 13-14, 1873. Bost., 1873. 8°. 72 p.

Dorr, Benjamin. *See* **Wallace,** J. W.

Dorrien, S. von. Forests and forestry. Letter addressed to V. C
importance of forests, their management in Germany, *etc.* N.
45, (1) p. Map. [3]

Doster, William Emil. An oration before the assembly of the H
School, March 18, 1859. Camb., 1859. 8°. 39 p. [1]

Dougherty, John. State of the Union. Speech in the Assem
fornia, Feb. 14, 1861. *n.t.p.* [1861.] 8°. 16 p. [3]

Douglas, Stephen Arnold. *See* **Black,** J. S.; — **Virginius,** *pseud*

Douglas, *Mass.* Report of the selectmen of the town for the
March 3, 1848. [Worcester, 1848.] Broadside. [2]

Dover, *N.H.* *See* **Ham,** J. R.

— **Methodist Episcopal Church.** *See* **Thurston,** J.

Dover (*N.H.*) directory for 1859. [No. 6.] By J. S. Hayes.
16°. [3, *Augustus Russ, Boston.*]

Dowling, Alfred S. Reports of cases in the King's Bench Pra
with the points of practice in the Courts of Common Pleas and
1830-41. Lond., 1833-42. 9 v. 8°. [1]

Downer Landing directory. *See* **Nantasket.**

Drake, James Madison. Fast and loose in Dixie. Narrative
experience as a prisoner of war at Libby, Macon, Savannah, a
ton. N.Y., 1880. 16°. Illus. [1]

Drake, Samuel Gardner. Address. *See* **New England Histo
logical Society.**

Drawing. *See* **Reiber,** E.

Dresser, H. E. Notes on the birds of Southern Texas. *n.p.*
(54) p. [1]

From the Ibis for Oct., 1865, and Jan., 1866.

Dring, Thomas. Recollections of the Jersey prison-ship; prepa
lication by A. G. Greene. Providence, 1829, *reprinted* [1880?]

Drone, Eaton Sylvester. A treatise on the law of property in
productions in Great Britain and the United States, embraci
and playright. Bost., 1879. 8°. liv, 774 p. [1]

Drury, Edwin. Line of descent from Hugh Drury, of Boston, 16
Drury, of Wilmette, [Ill.], in 1880. [Wilmette, 1880.] Br
Edwin Hubbard, Chicago, Ill.]

— Line of descent from John Heald, in Concord, Mass., 1635, to
beth Heald, who died Feb., 1871, at McHenry, Ill. [Wilmett
Broadside. [3, *E. Hubbard.*]

Drury family. *See* **Drury,** E.

Drury College, *Springfield, Mo.* 1st-8th annual catalogue,
Springfield, St. Louis, 1874-81. 8°. [3]

Dryden, John. *See* **Saintsbury,** G.

buque, *Iowa. Board of Education.* 20th annual report. With the rules and regulations, and a historical sketch. Dubuque, 1878. 8°. [3]

dley, Thomas U. Address before the Society of Alumni of the University of Virginia, July 2, 1879. Charlottesville, Va., 1879. 8°. 28 p. [3]

er, John. Revised statutes of New York, [1836]. *See* **New York.**

ff, Mountstuart Elphinstone Grant. Foreign policy. Lond., 1880. 8°. 56 p. (**National Liberal Federation.** Practical politics, no. 2.)

ffy, *Sir* Charles Gavan. Young Ireland: a fragment of Irish history, 1840-50. N.Y., 1881 [1880]. 8°. viii, 778 p. [1]

Daniel O'Connell figures prominently in this narrative.

hamel, W. J. C. An address on the centennial of the siege of Yorktown, Va., 1781-1881. *n.p.*, [1881]. 8°. 7 p. [3, *Author.*]

A history of the surrender of the British forces to the Americans and French, at Yorktown. *n.p.*, 1881. 8°. 11, (1) p. Plan. [3, *Author.*]

kes County, *Mass.* Statement of the receipts and expenditures for the year ending Dec. 31, 1870. *n.t.p.* [1870.] Broadside. [3]

mmer family. *See* **Chester,** J. L.

ncan, George. Geography of India. With historical notes. 10th ed. Madras, 1880. 16°. Illus. [1]

ncombe, Charles. Free banking: an essay on banking, currency, finance, *etc.* Cleveland, 1841. 12°. [1]

pont, Emilien. Essai sur les insectes et les maladies qui affectent le blé. Montreal, 1857. 8°. 38 p. [3]

rfee, Job. Complete works; with a memoir of the author. Ed. by [T. Durfee]. Providence, 1849. 8°. [3, *Edwin M. Stone, Providence, R.I.*]

tcher, L. L. Historical discourse on the rise and progress of the First Congregational Church of St. Albans, Vt. St. Albans, 1860. 8°. 12 p. [3]

tton family. *See* **Cope,** G.

val, John P. Compilation of the public acts passed prior to 1840. *See* **Florida.** *Legislative Council.*

vall, Alvin. Reports of selected civil and criminal cases decided in the Court of Appeals of Kentucky. Vol. 2. 1865-66. Frankfort, Ky., 1867. 8°. [1]

xbury, *Mass.* **Standish Monument.** *See* **Standish Monument Association.**

vight, Henry O. Turkish life in war time. N.Y., 1881. 12°. [1]

vight, Theodore William. Elements of permanency in our national institutions. Address before the alumni of Hamilton College, June 23, 1880. N.Y., 1880. 8°. 38 p. [3]

er, Isaac W., *compiler.* A manual of Maine corporation law. Portland, 1881. 16°. [1]

ds, H. L. Shaker sermons: scripto-rational. Containing the substance of Shaker theology. Shakers, N.Y., 1879. 8°. Portrait. [3, *Author.*]

r. *See* **Illinois.** *Charitable Eye and Ear Infirmary;* — **Massachusetts Charitable Eye and Ear Infirmary.**

st. *See* **Moore,** J., *Jr.*

st Boston ferries. *See* **Smith,** R. D., *and* **Pillsbury,** A. E.

st Bridgewater directory. *See* **Brockton.**

st Haven, *East Boston, Mass.* *See* **Alexander,** J.

st Providence, *R.I.* *See* **Bliss,** G. N.

stern Railroad Company. 46th annual report, 1880. Bost., 1880. 8°. [3]

ton, Dorman B. The "spoils" system and civil service reform in the custom-house and post-office at New York. N.Y., 1881. 16°. (**Civil Service Reform Association.** Publ., no. 3.) [1]

lectic Society of Arkansas. Proceedings of the Legislature and of the Historical Society of Arkansas, and the Eclectic Society, fixing the pronunciation of the name **Arkansas.** Little Rock, 1881. 8°. (2), 16 p. [2]

Economic tracts. No. 1-3. Series, 1880-81. N.Y., 1880-81. 16°.

Contents.

No. 1. **Atkinson,** E. What is a bank?
2. **Sumner,** W. G., *and others.* Political economy and political science.
recommended for general reading, and as an introduction to special study.
3. **Subjects** and questions pertaining to political economy, constitutional

Eddy, Charles. Genealogy of the Eddy family. Brooklyn,
16°. [1]

Eddy family. *See* **Eddy, C.**

Eden, Charles H. The West Indies. Lond., 1880. 16°. Map
(**Pulling,** F. S., *ed.* Foreign countries.) [1]

Edgar, Andrew, *and* **Rogers,** Charles. Genealogical collections
the Scottish house of Edgar. With a memoir of James Edg
secretary to the Chevalier St. George. Lond., 1873. sm. 8°. P

Edgar family. *See* **Edgar,** A., *and* **Rogers,** C.

Edinburgh review. Vol. 152-153. Amer. ed. N.Y., 1880-81. 2 v

Edmands, J. Wiley. Speech in the House of Representatives, M
on the Nebraska and Kansas territorial bill. Wash., 1854. 8°.

Edmunds, James. The medical use of alcohol; and stimulants
N.Y., 1874. 16°. 96 p. [1]

Education. *See* **Adams,** C. F., *Jr.*; — **Aldrich,** P. E.; — **Ameri**
tute of Instruction; — **American** journal of education; —
J.; — **Bardeen,** C. W.; — **Boutwell,** G. S.; — **Dickinson,**
Fitch, J. G.; — **Fortescue,** H. F., *Earl*; — **Galloway,** R.; —
Hinsdale, B. A.; — **Journal** de l'instruction publique; — **J**
education; — **National Educational Association**; — **Northr**
— **Oppler,** A.; — **Payne,** J.; — **Quick,** R. H.; — **Rice,** A. H
ards, Z.; — **Robinson,** R.; — **School Board** chronicle; — **Seg**
Sill, E. R.; — **Smart,** J. H.; — **Soldan,** L.; — **Sonnensche**
Tweed, B. F.

Edwards, John H. A history of the Heard family, of Wayland, Ma
1880. 8°. 61 p. Portraits. [1]

Egypt. *See* **Poole,** S. L.

Elections. *See* **Brightly,** F. C.; — **Butler,** B. F.; — **Massachuse**

Elevated railways. *See* **Bradford,** M. L.; — **Child,** L. M.; — **H**
M.; — **Massachusetts.** *General Court*; — **Merrill,** M.

Eliot, Charles William. Speech for aid in the preservation of the
Meeting-House, [before the committee on federal relations of
chusetts Legislature]. Bost., 1878. 8°. 14 p. [3, *Samuel A. G*
Boston.]

Eliot, William H., *Jr.*, *and* **Porter,** William S. Genealogy of the
ily. [John Eliot and his descendants.] New Haven, 1854. 8°.

Eliot family. *See* **Eliot,** W. H., *Jr.*, *and* **Porter,** W. S.

Eliot, *Mass.* Short genealogical account of a few families of the
tlers in Eliot. And of a branch of the Moody family. Saco
23 p. [3, *Dr. John S. H. Fogg, Boston.*]

Contains genealogies of the Fogg and Hill families.

Eliot, *Me.* *See* **Short** genealogical account.

Elizabeth, *N.J.* *See* **Hatfield,** E. F.; — **Murray,** N.

Eller, Homer C. Digest of decisions of the Supreme Court of Mi
contained in volumes 1 to 25 inclusive of the Minnesota reports.
1880-81. 2 v. l. 8°. [1]

Ellicott, Thomas. Bank of Maryland conspiracy, as developed in
to the creditors. Phila., 1839. 8°. [1]

Elliot, George H. Report of a tour of inspection of European
establishments, 1873. *See* **United States.** *Department of the T*

Elliott, Stephen. A reply to a resolution of the Georgia Historic
read before the Society, Feb. 12, 1866. Savannah, 1866. 8°. 13

— *See* **Cohen,** S.

Ellis, Rufus. Twenty years in First Church: an anniversary sermon, May 4, 1873. Bost., 1873. 8°. 20 p. [3, *S. P. Mayberry, Boston.*]

Elmes, Webster. The executive departments of the United States at Washington. A comprehensive view of the powers, functions, and duties of the heads of departments, bureaus, *etc.* Wash., 1879. sm. 8°. [1]

Elton, Romeo. Life of Roger Williams. Providence, 1853. 16°. [3, *Edwin M. Stone, Providence, R.I.*]

Emery, Sarah Anna, *editor.* Reminiscences of a nonagenarian. Newburyport, 1879 8°. Illus. [1]

Contains historical sketches and family histories of Newbury and Newburyport.

Emmons, Ebenezer. Report of the North-Carolina Geological Survey. Agriculture of the eastern counties. Illus. Raleigh, 1858. 8°. [3, *Prof. W. C. Kerr, Raleigh, N.C.*]

Encyclopædia Britannica. 9th ed. Vol. 12. Bost., 1881. 4°. Illus. [1]

Contents.

12. Hir — Ind.

Encyclopædias. *See* **Barnard, F. A. P.**, *and* **Guyot, A. (H.)**; — **Encyclopædia** Britannica.

Enderby, Charles. Currency: inquiry solicited; but general declamation, without reasoning, disregarded. 3d ed. Lond., 1842. 8°. 16 p. [1]

Engineering and mining journal. Vol. 27–31. Jan. 1879–June 1881. N.Y., 1879–81. 5 v. f°. [3]

England. *See* **Brodrick,** G. C.; — **Mongredien, A.**; — **Weeks,** J. D.

English catalogue. *See* **Low,** S.

English language. *Dictionaries.* *See* **Worcester, J. E.**

Erie Canal. *See* **Troy,** *N. Y. Common Council.*

Erie County (*Pa.*) **Teachers' Institute.** Proceedings and reports, 13th annual meeting, 1880. Erie, 1881. 8°. [3]

Essex County, *Mass.* *See* **Crosby, N.**

Essex County directory, 1874, 80–81. Bost., 1874–80. 2 v. 8°. [1]

Essex County Druggists' Association. To the members of the state Legislature. [Memorial relating to the pharmacy law.] *n.p.*, [1881]. 8°. 8 p. [3]

Essex directory. *See* **Danvers.**

Essex Institute. Bulletin. Vol. 12. 1880. Salem, 1881. 8°. [1]

– Historical collections. Vol. 16–17. Salem, 1879–80. 2 v. 8°. [1]

Ethics. *See* **Spencer, H.**

Europe. *See* **Freeman,** E. A.; — **Fyffe,** C. A.; — **Moore,** J., *Jr.*

Evans, Thomas W. Sanitary institutions during the Austro-Prussian-Italian conflict. [With] an essay on ambulance wagons, catalogue of the author's sanitary collection, *etc.* 3d ed. Paris, 1868. 8°. [3]

Everett, Edward. Address at Lexington, 19th (20th) April, 1835. 2d ed. Charlestown, 1835. 8°. 36 p. [2]

– A memoir of John Lowell, jun. Delivered as the introduction to the lectures on his foundation, 31st Dec., 1839. Bost., 1840. 8°. 74 p. [1]

– Speech in the Senate of the United States, Feb. 8, 1854, on the Nebraska and Kansas territorial bill. Wash., 1854. 8°. 14 p. [3]

– Speech on the Central American treaty, in the Senate of the United States, March 21, 1853. Wash., 1853. 8°. 13 p. [3]

– *See* **Boston. Thursday-Evening Club.**

Everett directory. *See* **Malden.**

Evidence. *See* **Wharton, F.**

Exeter, *N.H.* *See* **Bell,** C. H.

Eye. *See* **Conklin,** W. J.; — **Illinois.** *Charitable Eye and Ear Infirmary;* — **Massachusetts Charitable Eye and Ear Infirmary.**

Fagan, Louis. Life and correspondence of Sir Anthony Panizzi.
Bost., 1881. 2 v. 8°. Portraits. [1]

Fairhaven, *Mass.* *See* **Ricketson, D.**

Fall River, *Mass.* Address of N. B. Borden, Mayor, 1858. Fall R
8°. [2]

— [4th-7th annual] report of the Watuppa water board, 1878-81. F
1878-81. 8°. [3]

— City document, no. 34. Fall River, 1881. 8°. [3]

— Report of the auditing committee for the year ending Jan. 31, 1854
committee's report of the receipts & expenditures, Jan., 1858,
River, 1854-60. 8°. [2]

Fall River directory and an almanac for 1859. By Adams, Samps
Fall River, 1859. 16°. [3]

— *Same.* 1880. No. 14. By Sampson, Davenport, & Co. Fall Riv
8°. Map. [1]

Famines. *See* **Trevelyan,** *Sir* **C. E**

Farmers. *See* **Bennett, E. H.; — Buckham, M. H.**

Farr, D. C. Re-union of the Wheeler family of Acton, at West Ac
7, 1879. With a sketch of the local Wheeler family genealog
generations. Marlboro, 1879. 8°. 7 p. [1]

Farrar, Maurice. Five years in Minnesota. Lond., 1880. 16°. [1]

Farrer, James Anson. Adam Smith. 1723-1790. N.Y., 1881. sm. 8
ler, I., *ed.* English philosophers) [1]

— Crimes and punishments, including a new translation of Becca
delitti e delle pene.' Lond., 1880. sm. 8°. [1]

Farrier, George H., *editor.* Memorial of the centennial celebrati
battle of Paulus Hook, Aug. 19, 1879; with a history of Jersey
Jersey City, 1879. 8°. Map, portraits and illus. [3, *Editor.*]

Fate of republics. *See* **Townsend, L. T.**

Fauquier County, *Va.* Whig Central Committee of Vigilance.
[to the people on the project for arming and disciplining the
n.p., [1840]. 8°. 16 p. [1]

Fawcett, Henry, *and Mrs.* Millicent Garret. Essays and lectures
and political subjects. Lond., 1872. 8°. [1]

Contents.

Modern socialism — General aspects of state intervention. — Free education i
mic aspects. — Pauperism, charity and the poor law. — The regulation of the hou
by the state — National debts and national prosperity. — What can be done for
tural labourers? — The Schools Inquiry Commissioners on the education of girls.
cation of women. — The electorial disabilities of women. — Why women require th
— The House of Lords. — An American on representation. — Proportional represe
Hare's scheme explained.

Federal reporter. Vol. 1-6. Cases in the Circuit and District Cou
United States, 1880-81. P. Boyle, editor. Saint Paul, 1880-81.
[1]

Felt, Charles W. Nuts for Butler to crack. No. 3. Bost., 1879. 8°.

Felt, Joseph Barlow. An address before the alumni of Atkinson
N.H., Aug. 25, 1859. With other proceedings. Bost., 1859. 8°.
J. B. F. Osgood, Salem.]

— Did the First Church of Salem originally have a confession of fait
from their covenant? Bost., 1856. 8°. 28 p. [3, *J. B. F. Osgood*

— Ecclesiastical history of New England. Vol. 2. Bost., 1862. 8°.

— Memoir of the Rev. Francis Higginson. Bost., 1852. 8°. 23 p. [3
Osgood, Salem.]

— A memoir, or defence of Hugh Peters. Bost., 1851. 8°. 67 p.
[3, *J. B. F. Osgood, Salem.*]

— Reply to the New-England Congregationalism of D. A. White
1861. 8°. 57 p. [3, *J. B. F. Osgood, Salem.*]

— Who was the first governor of Massachusetts? Bost., 1853. 8°.
J. B. F. Osgood, Salem.]

lton, Cornelius Conway. An address, Aug. 15, 1828, at the Livingston County High School, Geneseo, N.Y. Camb., 1828. 8°. 24 p. [3, *S. P. Mayberry, Boston.*]

An address on the anniversary of the Concord Lyceum, Nov. 4, 1829. Camb., 1829. 8°. 39 p. [3, *S. P. Mayberry, Boston*]

See **Peabody,** A. P.

lton, Cyrus. The Johnson family. Account of the descendants of Wm. Johnson, Charlestown, 1634, and of Jonathan Johnson, Marlborough, 1662. Marlboro, 1879. 8°. 16 p. [1]

Record of remarkable events in Marlborough and neighboring towns. No. 2. Marlborough, 1880. 8°. 43 p. [1]

male education. *See* **Massachusetts Society for the University Education of Women.**

eld, Cyrus West, *editor.* Ocean telegraphy: the 25th anniversary of the organization of the first company ever formed to lay an ocean cable, Mar. 10, 1879. [N.Y., 1879.] sm. 4°. 64 p. [3, *Author.*]

eld, David Dudley. The vote that made the president. N Y., 1877. 8°. 22 p. [3]

elds, James Thomas. *See* **Bartol,** C. A.

nance. *See* **Commercial** and financial chronicle; — **Trant,** W.

nancial reform almanack for 1881. Lond , [1881]. 8°. [3]

ne arts. *See* **Art** journal; — **Boston Museum of Fine Arts; — Massachusetts.** *State Director of Art Education;* — **Osgood,** S.

nland. *See* **Vincent,** F., *Jr.*

nney, William H. Address [to the board of school committee, on the limitation of the expenditures of school committees. Bost., 1881]. 8°. 9-22 p. [3]

sher, Elijah. Journal while in the war for independence, and two years after he came to Maine. 1775-84. Augusta, 1880. 8°. 29 p. [3, *W. B. Lapham, Augusta, Maine.*]

isher, Robert Alexander. Digest of the reported decisions in all the courts with a selection from the Irish, 1870-80. Consolidated and arranged by T. W. Chitty and J. Mews. Lond., [1880]. 2 v. l. 8°. [1]

Contents.

Vol. 1. Aba. — Inn.
2. Ins. — Yeo.; Cases overruled, *etc.*, and addenda.

isher, Samuel Sparks. Reports of cases arising upon letters patent for inventions in the Circuit Courts of the United States, [1848-73]. Cincin., 1867-74. 6 v. 8°. [1]

Vol. 6 was completed by J E. Hatch and R. H. Parkinson: v. 5-6 contain also cases in the Supreme Court; v. 6 has a portrait of S. S Fisher with a sketch of his life.

isher, Samuel Ware. *See* **Hamilton College.**

isher, William Hubbell. Reports of cases relating to letters patent for inventions in the Supreme and Circuit Courts of the United States, [1821-50]. Vol. 1. Cincin., 1873. 8°. [1]

isheries. *See* **Massachusetts; — Michigan; — Ohio; — Pennsylvania; — Procter,** G. H.; — **Rich,** S.; — **United States.** *Commission of Fish and Fisheries;* — **Woodbury,** C. L.

isk, Elisha. Wrentham jubilee. Sermon, June 12, 1849, on the 50th anniversary of his ordination as pastor of the original Congregational Church in [Wrentham]. With an appendix. Bost., 1850. 8°. 64 p. [2]

iske, Charles H. Oration before the inhabitants of Weston, July 4, 1876. Weston, 1876. 8°. 38 p. [3, *George W. Cutting, Jr., Weston.*]

itch, J. G. Lectures on teaching, delivered in the University of Cambridge, 1880. Camb., 1881. sm. 8°. [1]

itchburg, *Mass.* By-laws to be observed by the town. *n.p.*, [1848]. 8°. 7 p. [3]

Fitchburg, *Mass., continued.*

— Report of the selectmen, containing the expenses of the town, for
ending March 1, 1850–53, 57; Report of the auditing committee, M
1859-60. Fitchburg, [1850]-60. 8°. [2]

— *See* **Massachusetts.** *General Court;* — **Snow,** C. H. B.; — **Willis,**

Fitchburg directory. No. 8-9. 1880-81. [Fitchburg], 1880–81. 2 v. 8
[1]

Fitchburg Railroad Company. 39th annual report of the directo
Bost., 1881. 8°. [3]

— *See* **Brown,** J. M.; — **Choate,** C. F.

Fitzgerald, John Foster Vesey. Australia. With illus. and map.
1881. 16°. (**Pulling,** F. S., *ed.* Foreign countries) [1]

Fitzgerald, Percy. The life of George the Fourth, including his let
opinions. Illus. N.Y., 1881. 12°. [1]

Fitzgibbon, Mary. A trip to Manitoba. Lond., 1880. 8°. [1]

Fitz-Gibbons, John. Reports of several cases in the Court of King'
at Westminster; with some special cases in the Courts of Chance
mon Pleas and Exchequer, [1728-32. Lond.], 1732. f°. [1]

Fitzwilliam, Charles William Fitzwilliam, *Earl.* 1st-3d addresse
landowners of England on the corn laws. New ed. Lond., 1
60 p. (**Pm.,** v. 119.) [1]

Flags. *See* **Preble,** G. H.

Flatbush, *N.Y.* *See* **Vanderbilt,** G. L.

Fletcher, S. W. A new microtome. *n.p., n.d.* 8°. 4 p.

Flint, Charles Louis. A hundred years' progress of American agri
an essay from the 21st annual report of the Massachusetts State
Agriculture. Bost., 1874. 8°. 56 p. Portrait. [3]

Florence. R. Istituto di Studi Superiori. *Sezione di Filosofia e*
Pubblicazioni. Vol. 2, disp. 6. Firenze, 1880. l. 8°. [3]

Contents.

Vol. **2,** disp. 6. **Caix,** C. N. Le origini della lingua poetica italiana. Princip
matica storica italiana, ricavati dallo studio dei manoscritti con una introduzione
mazione degli antichi canzonieri italiani.

— *Sezione di Medicina e Chirurgia.* Pubblicazioni. Firenze, 1880. l. 8

Contents.

Pacini, F. Del processo morboso del colera asiatico, del suo stadio di morte
e della legge matematica da cui è regolato. 2a ed.

Florida. *Legislative Council and General Assembly.* Acts and reso
11th session, [1881], with an appendix containing a statement of
and expenditures for 1879/80. Tallahassee, 1881. 8°. [2]

— — Compilation of the public acts passed prior to 1840. By J. P.
Tallahassee, 1839. 8°. [2]

— — Journal of the proceedings of the Assembly, 11th session, 1881.
hassee, 1881. 8°. [2]

With an appendix containing official documents.

— — Journal of the proceedings of the Senate, 1881. Tallahassee, 1881

With an appendix containing official documents.

— — Laws, 12th session, 1834. Tallahassee, 1834. 8°. [1]

— *Superintendent of Public Instruction.* Biennial report, 1879–80. Tall
1881. 8°. [2]

— *Supreme Court.* Cases argued and adjudged, 1878–80. Reported
Raney. Vol. 17. Tallahassee, 1880. 8°. [2]

— *See* **Moore,** T. W.

Fogg family. *See* **Eliot,** *Mass.*

Fontaine, William M. Introductory lecture. *See* **University of V**

Food. *See* **Bourne,** S.

Forbes, Robert Bennett. The life boat, and other life-saving inv
Bost., 1880. 16°. 20 p. Illus. [3, *Author.*]

orbes, Robert Bennett, *continued.*
Personal reminiscences. Bost., 1878. sm. 8°. [1]
The ship of the future for the inter-oceanic route. Bost., 1880. 8°. 14, (1) p. Plates. [3, *Author.*]

orests. *See* **Des Cars,** A. J., *comte*; — **Dorrien,** S. von; — **Northrop,** B. G.; — **Parsons,** C. W.; — **United States.** *Bureau of Education,* — *Department of Agriculture.*

orney, John Weiss. Anecdotes of public men. Vol. 2. N.Y., 1881. 12°. [1]

orster, John Montgomery. A sketch of the life of the Rev. Joseph Montgomery. Harrisburg, Pa., 1879. 8°. 47 p. [3, *Author.*]

ortescue, Hugh Fortescue, *Earl.* Public schools for the middle classes. Lond., 1880. 8°. 20 p. [1]

osdick, David. *See* **Putnam,** G.

ossett, Frank. Colorado, its gold and silver mines, farms and stock ranges, *etc.* Tourist's guide to the Rocky Mountains. 2d ed. N.Y., 1880. 12°. Maps and illus. [1]

oster, Arthur. Digest of the laws of Georgia, 1820–29. *See* **Georgia.** *General Assembly.*

oster, William E. The literature of civil service reform in the United States. Providence, 1881. 8°. 15 p. [3, *Author.*]

oulke, William Parker. The right use of history. An anniversary discourse before the Historical Society of Pennsylvania. [Phila.], 1856. 8°. 44 p. [4]

ourier, (François) Charles (Marie). *See* **Godwin,** P.

owle, William Bentley. A key to Fowle's diagrams, for the illustration of human physiology. Bost., 1850. 12°. Illus. [3]

owler, Thomas. Locke. N.Y., 1880. 12°. (**Morley,** J., *ed.* English men of letters.) [1]

owler, William Chauncey. Conditions of success in genealogical investigations illustrated in the character of Nathaniel Chauncey. A paper read before the New-England Historic-Genealogical Society in Boston, March 2, 1866. Bost., 1866. 8°. 28 p. [3]

ox, Charles James. *See* **Trevelyan,** G. O.

rance. Archives parlementaires de 1787 à 1860. Recueil complet des débats législatifs et politiques des Chambres Françaises. Imprimé sous la direction de J. Mavidal et de E. Laurent. 2e série. Tome 44–45. 1825–26. Paris, 1880. 2 v. l. 8°. [1]

— *Ministère de la Justice.* Bibliothèque du comité de législation étrangère. Catalogue. Paris, 1879. 8°. [2]

— *See* **Dillaye,** S. D.; — **Roberts,** M.; — **Taine,** H. A.

rancis, John W. New York during the last half century. Discourse in commemoration of the 53d anniversary of the New York Historical Society, and of the dedication of their new edifice, Nov. 17, 1857. N.Y., 1857. 8°. [3]

rankfort, *Ind. Board of School Trustees and Superintendent of Public Schools.* 6th-7th annual report, 1880-81. Indianapolis, 1880–81. 8°. [3]

ranklin, *Sir* John. *See* **Beesly,** A. H.

rederic II. *the Great, King of Prussia.* *See* **Longman,** F. W.

ree trade *and* **Protection.** *See* **Butts,** I.; — **Dixwell,** G. B.; — **Hayes,** J. L.; — **Mason,** D. H.; — **Mongredien,** A.; — **Scanlan,** J. F.; — **Sumner,** W. G.

reeman, Edward Augustus. The historical geography of Europe. Lond., 1881. 2 v. 8°. [1]

Contents.

Vol. 1. Text. 2. Maps.

reeman, Norman L. Reports of cases in the Supreme Court of Illinois, 1879–80. Springfield, 1880–81. 4 v. 8°. (Illinois reports, v. 93–96.) [2]

Freemasons. *Massachusetts, Grand Lodge.* Proceedings, March, 1 1870; March, 1872-March, 1881; May 10, June 8, 1881. Bost., 12 v. 8°. Portraits. [3]

— *See* **Weisse, J. A.**

Friendly societies. *See* **Great Britain.** *Chief Registrar of Societies.*

Friends. *See* **Barton, H.**; — *See* **Onderdonk, H.**, *Jr.*

Frieze, Jacob. A concise history of the efforts to obtain an ext suffrage in Rhode Island, 1811-42. Providence, 1842. 12°. [1]

Frisbie, Levi. *See* **Norton, A.**

Froebel, Friedrich. *See* **Wiebe, E.**

Fruit. *See* **Goessmann,** C. A., *and* **Maynard,** S. T.

Fuller, James Franklin. The family of Fuller. Some royal, nc gentle descents of the Kerry branch. Dublin, 1880. 4°. [3, *Auth*

Fuller family. *See* **Fuller, J. F.**

Furber, Daniel Little. Religion and education in a republic. annual election, Jan 5, 1881. Bost., 1881. 8°. 40 p [4]

Fyffe, Charles Alan. A history of modern Europe. Vol. 1. Wi N.Y., 1881. 8°. [1]

Contents.

Vol. 1. From the outbreak of the revolutionary war in 1792 to the accessi xviii in 1814.

Gale, George. The Gale family records in England and the Unite added, the Tottingham family of New England, and the Bogar dron and Young families of New York. Galesville, Wis., 186 Portraits. [1]

Gale family. *See* **Gale, G.**

Gallatin, (Abraham Alfonse) Albert. Considerations on the curr banking system of the United States Phila., 1831. 8°. [1]

Gallenga, Antonio. South America. 2d ed. Lond., 1881. 8°. Ma

Galloway, Robert. Education, scientific and technical; or, How t tive sciences are taught and how they ought to be taught. Lo 8°. [1]

Galton, Douglas. Observations on the construction of healthy d Oxford, 1880. 8°. Illus. [1]

Gammell, Sereno Dwight. Farewell sermon, Aug. 1, 1880, in Boxfo at the conclusion of his settlement over the first church and pari ford, 1880. 8°. 8 p. [1]

Gannett, Ezra Stiles. An address at the semi-centennial celebrati Cambridge Divinity School, July 17, 1867. Bost., 1867. 8°. 31 p.

Gardiner, John. Speech in the House of Representatives, [M Jan., 1792, on the expediency of repealing the law against theatr bitions. [With a dissertation on the ancient poetry of the Bost., 1792 8°. [1]

Gardner, Asa Bird. The Rhode Island line in the continental arm Society of Cincinnati; a paper read before the Rhode Island Society, April 30, 1878. Providence, 1878. 8°. 12 p. [3]

Gardner, *Mass.* Copy of the valuation and taxes, 1859, 80. Gardner, 1859-80. 8°. [2, 3]

— Report of the selectmen and overseers of the poor for the ye March 2, 1861. Fitchburg, 1861. 8°. [2]

Garland, R., *and others.* Plan of the standing army of 200,000 mitted to Congress by the Secretary of War, and recommend President. Wash., 1840. 8°. 16 p. [1]

Garrison, William Lloyd. *See* **May, J.**

Gaspee, *schooner. See* **Bartlett, J. R.**

aston, William. Argument in relation to the new lunatic hospital at Danvers, Mass. Bost., 1877. 8°. 37 p. [3]

- Argument relative to the petition of W. Shanly, before the committee on claims of the Massachusetts Legislature, 1877. Bost., 1881. 8°. 20 p. [4]

ay, Ebenezer. The old man's calendar. A discourse delivered in the First Parish of Hingham, Aug. 26, 1781, the birth-day of the author. Bost., 1781. 16°. 24 p. [2]

endall, Walter. *See* **Banks, C. E.**

enealogy. *See* **Fowler, W. C.**; — **New-England** historical and genealogical register, 1880.

Genealogies of the following families have been received during the year, *namely:* **Adams**; — **Baldwin**; — **Bicknell**; — **Brattle**; — **Briggs**; — **Burbank**; — **Burgess**; — **Burley** *or* **Burleigh**; — **Carruth**; — **Cheever**; — **Clayton**; — **Cleveland**; — **Colt** *or* **Coutts**; — **Drury**; — **Dutton**; — **Eddy**; — **Edgar**; — **Eliot**; — **Fuller**; — **Gale**; — **Hallock**; — **Hassam**; — **Hastings**; — **Heald**; — **Heard**; — **Hilton**; — **Horton**; — **Jarvis**; — **Johnson**; — **Jones**; — **Knox**; — **Lefferts**; — **Littlehale**; — **MacDonald**; — **Marston**; — **Martin**; — **Morrison**; — **Newcomb**; — **Peirce**; — **Peter**; — **Poore**; — **Rexford**; — **Scott**; — **Scranton**; — **Seaman**; — **Sharpe**; — **Starkie**; — **Stoddard**; — **Thurston**; — **Towne**; — **Trowbridge**; — **Wheeler**; — **Whipple**; — **Woodman.**

eneral Association of Connecticut. Minutes, 166th-171st annual meeting, 1875-80. Hartford, 1875-80. 8°. [1]

There is a general index for 1875 to 1880 in the "Minutes" for 1880.

eneral Association of New Hampshire. Minutes, 69th-71st annual meeting, 1878-80. [With the] 77th-79th annual report of the New-Hampshire Home Missionary Society. Bristol, N.H., 1878-80. 8°. [1]

The 77th report of the Missionary Society is separately paged and has a separate title-page.

eneral Association of the Congregational Churches of Massachusetts. Minutes, 77th-78th annual meeting, [1879-80]. Boston, 1879-80. 8°. [2]

eneral Conference of the Congregational Churches of Connecticut. Centennial papers. Hartford, 1877. 8°. [1]

Contents.

Fowler, W. C. Ministers of Connecticut in the revolution. — **Bacon, L.** Relations of the Congregational Churches of Connecticut to civil government, and to popular education and social reforms. — **Morris, M. N.** Historical discourse, Nov. 15, 1876. — **Anderson, J.** Growth of a Christian literature. — **Northrop, C.** Influence of New-England ideas on the history of the country.

- Minutes, 8th-12th annual meeting, 1875-79. Vol 2. Hartford, 1876-80. 8°.

There is a general index for 1875 to 1879 in the "Minutes" for 1879.

eneral Conference of the Congregational Churches in Maine. [Minutes], 54th anniversary; [with the report of the] Maine Missionary Society, 73d anniversary, 1880. Bangor, 1880. 8°. [1]

eneral Convention of Congregational Ministers and Churches of Vermont. Minutes, 81st-84th annual meeting, 1876-79. [With the] 58th-61st annual report of the Vermont Domestic Missionary Society, and 56th-59th annual report of the Vermont Education Society. Montpelier, 1876-79. 8°. [1]

enesee County Pioneer Association. History of its organization, list of officers and members, and the annual address, June 11, 1878, by N. Seymour. Batavia, N.Y., 1879. 8°. 44 p. [3, *N. Seymour, Mt. Morris, N.Y.*]

eneva, *N.Y.* *See* **Conover, G. S.**

eneva award. *See* **Massachusetts Geneva Award Association.**

entleman's magazine. Vol. 249-250. Lond., 1880-81. 2 v. 8°. [1]

The seven volumes preceding these are incorrectly numbered, v. 240-246, they should be 242-248.

eography. *See* **Johnston, (A.) K.,** *Jr.*; — **Royal Geographical Society.**

eology. *See* **Barrande, J.,** *and others*; — **Cozzens, I.,** *Jr.*; — **Diller, J. S.**; — **Indiana**; — **Minnesota**; — **New Hampshire**; — **New Jersey**; — **New York**; — **North Carolina**; — **Pennsylvania**; — **Prime, F.,** *Jr.*; — **United States**; — **Wisconsin.**

George IV., *King of England.* *See* **Fitzgerald,** P.

George, Henry. The Irish land question. An appeal to the lan
N.Y., 1881. 12°. 85 p. [1]

George, John H. Argument in behalf of the petition of the B
Lowell Railroad for an increase of terminal facilities in Bost
the railroad committee of the Massachusetts Legislature, Fe
Bost., 1869. 8°. 39 p. [3]

George, Staughton. Charter and laws of Pennsylvania, 1682-
Pennsylvania. *Secretary of State.*

Georgetown, *Mass.* **Peabody Library.** Bulletin, no. 3. 1881. *n*
8°. 8 p. [3]

Georgia. *General Assembly.* Acts and resolutions, 1878-79. Atla
8°. [2]

— – A digest of the laws of Georgia: containing all statutes passed
to 1829. By A. Foster. Phila., 1831. 8°. [1]

— – Journal of the House of Representatives, 1878-79. Atlanta,
8°. [2]

— – Journal of the Senate, 1878; adjourned session, 1879. Atlanta,
8°. [2]

The Senate journal for 1879 has an appendix containing the proceedings of the
of Impeachment, in the trials of W. L. Goldsmith, Comptroller-General, and J.
State Treasurer.

— *Law Library.* Catalogue, 1879. F. L. Haralson, state librarian.
1879. 8°. [2]

— *Railroad Commission.* The briefs of the attorneys for the Rail
mission. *n.p.*, [1881]. Newspaper slip. [3]

— – Decision in suit against the Railroad Commission. [Atla
1 sheet. [3]

— – Extracts from the constitution relating to railroads, with the ac
a railroad commission. [Atlanta, 1879.] 1 sheet. [3]

— *State School Commissioner.* Report, 1879-80. Atlanta, 1880. 8°.

— *Superior Courts.* *See* **Charlton,** T. U. P. Reports, [1805-10].

— *Supreme Court.* Reports of cases, 1878-79. Vol. 60-63. By [H.
& [J. H.] Lumpkin. Atlanta, 1879-81. 4 v. 8°. [2]

— – *See* **Heyward,** W. I. Table of cases.

— *See* **Jones,** C. C., *Jr.*

Georgia Historical Society. Constitution, by-laws and list of
Savannah, 1859. 8°. 15 p.

— Proceedings, resolutions and communications, commemorative of
Edward J. Harden. [Savannah], 1873. 8°. 31 p. [3]

Georgia Indians. *See* **Jones,** C. C., *Jr.*

Gerard, James W. The old stadt huys of New Amsterdam. A
before the New York Historical Society, June 15, 1875. N.Y.
59 p. [1]

— The old streets of New York under the Dutch. A paper read
New York Historical Society, June 2, 1874. N.Y., 1875. l. 8°. 5

Gettysburg, *Pa.* *See* **Soldiers' National Cemetery Association.**

Gewerbeblatt für das Grossherzogthum Hessen. Redigirt von
43er Jahrgang. 1880. Darmstadt, [1880]. 8°. [2]

Gholson, William Yates. Address on the payment of the bon
United States in coin, Avondale, Oct. 2, 1868. Cincin., 1868. 8°.

Gill, John. The art of teaching young minds to observe and thin
trated by sketches and notes of lessons. 5th ed., enlarged. L
16°. [1]

— Introductory text-book to school education, method, and schoo
ment. Lond., 1881. 16°. [1]

— Systems of education advocated by eminent educationists. Lo
16°. [1]

adstone, William Ewart. Two letters to the Earl of Aberdeen, on the state prosecutions of the Neapolitan government. 1st Amer. from the 5th Lond. ed. N.Y., 1851. 8° 56 p. (**Pm.**, v. 118.) [1]

ee **Jones,** C. H.

asgow. *Mitchell Library.* Report on the Library, 1874-79. Glasgow, 1880. 8°. [3]

oucester, *Mass.* *See* **Procter,** G. H.

Evangelical Congregational Church. Exercises at the 50th anniversary of the Church, Nov. 18, 1879. [Including the historical address by F. G. Clark.] Gloucester, 1880. 8°. 75 p. [1]

First Church. Authentic historical statement. Showing also the legal relations of parishes and churches. Gloucester, 1880. 8°. 27 p. [1]

oucester directory, 1880-81. No. 7. And Rockport business directory. By Sampson, Davenport, & Co. Gloucester, 1880. 8°. Map. [1]

ddard, Delano Alexander. Newspapers and newspaper writers in New England, 1787-1815. Bost., 1880. 8°. 39 p. [1]

Read before the New England Historic, Genealogical Society, Feb. 4, 1880.

din, Jean Baptiste André. The association of capital with labor; being the laws and regulations of mutual assurance, regulating the social palace at Guise, France. Tr. by L. Bristol. N.Y., 1881. 8°. 87 p. [1]

Published by the New York Woman's Social Science Society.

dwin, Parke. A popular view of the doctrines of Charles Fourier. N.Y., 1844. 8°. [3]

essmann, Charles A. The comparative value of several varieties of Indian corn for feeding purposes. Bost., 1880. 8°. (35) p. [4]

From the 27th annual report of the Massachusetts State Board of Agriculture.

'he cultivation of the sugar-beet for the manufacture of sugar. Bost., 1880. 8°. (25) p. [4]

From the 27th annual report of the Massachusetts State Board of Agriculture.

nd **Maynard,** S. T. Contributions to the chemistry of fruit-culture. Bost., 1880. 8°. (25) p. [4]

From the 27th annual report of the Massachusetts State Board of Agriculture.

rdon, Thomas. The craftsmen: a sermon, or paraphrase, upon several verses of the 19th chapter of the Acts of the Apostles. Reprinted from the 6th ed., 1742. Lond., 1839. 12°. 24 p. (**Pm.**, v. 119.) [1]

shen, *Mass.* *See* **Barrus,** H.

tha, Almanach de. *See* **Gotha.**

uld, Sabine Baring-. The origin and development of religious belief. Lond., 1878. 2 v. sm. 8°. [1]

Contents.

Part 1. Polytheism and monotheism. 2. Christianity.

uld, William & Son. Catalogue of law books published and for sale by W. Gould & Son. Albany, 1881. 8°. [3, *Publishers.*]

wans, William. Bibliotheca Americana. [No. 1.] N.Y., 1845. 8°. [3]

Contents.

1. **Denton,** D. A brief description of New York. New ed., with introduction and notes by G. Furman.

afton, *Mass.* Annual reports of the several town officers for the year March 1, 1857; March 4, 1861. Worcester, [1857-61]. 8°. [2]

Report of the assessors, 1861. Worcester, [1861]. 8°. [2]

Free Public Library. 1st annual report, 1868. Worcester, [1868]. 8°. [3]

Evangelical Church. 1829-79. The 50th anniversary: proceedings at the semi-centennial of the Ladies' Sewing Circle, March 5, 1879. Worcester, 1879. 8°. 24 p. [3, *H. L. Shumway, Worcester.*]

and Army of the Republic. *Post Phil. Kearny, Department of New York.* Reunion at Irving Hall, March 25, 1868. Banner presentation and address by J. W. De Peyster. N.Y., 1868. 8°. 19, (1) p. [3]

Grant, Ulysses Simpson, *Pres. of the U.S.* *See* **Badeau, A.**;—
P.;—**Marshall,** E. C.

Grattan, Peachy R. Reports of cases in the Supreme Court of
Virginia. Vol. 33, 1880. Richmond, 1881. 8°. [2]

Gray, James M. A sermon preached in the First Reformed Episco
Boston, Nov. 14, 1880, in memory of Rev. Samuel Cutler. [Bos
18 p. [3, *Author.*]

Great Barrington, *Mass.* Report of a committee of the town up
ing school districts and establishing a town school system. L
25 p. [3]

Great Britain. *Bail Court.* *See* **Dowling, A. S.** Reports,
Saunders, T. W., *and* **Cole,** H. T. Bail Court reports, [1846-4

— *Charity Commission.* 27th report. [Lond., 1880.] f°. [1]

— *Chief Registrar of Friendly Societies.* Friendly societies, ind
provident societies and trade unions. Reports, 1878. Par
[Lond., 1879.] 1 v. in 3 pts. f°. [1]

— *Commissioners of the Customs.* 24th report, [1879]. Lond., 1880.

— *Commissioners appointed to Inquire into the Truck System.* Re
minutes of evidence. Vol 1. Report, schedules, and suppleme
1871. f°. [1]

— *Commissioners in Lunacy.* Copy of the 34th report. [Lond., 188

— *Committee of Council on Education (England and Wales).* Re
appendix, 1879-80. Lond., 1880. 8°.

— *Court of Common Pleas.* *See* **Brownlow, R.,** *and* **Goldesb**
Reports, [1569-1624]; — **Carter,** S. Reports, [1664-76]; — **Hutt**
Reports, [1612-39]; — **Littleton, E.,** *Lord.* Les reports, [1626-32]
Sir J. Les reports de divers special cases, [1580-94]; — **Win**
Reports, [1621-25].

— *Court of Exchequer.* *See* **Bunbury, W.** Reports, [1713-41].

— *Court of King's Bench.* *See* **Aleyn, J.** Select cases, [1646-49]; —
iston, T. Reports, [1726-34]; — **Cases,** [1733-38]; — **Comberba**
ports, [1685-99]; — **Fitz-Gibbons, J.** Reports, [1728-32]; — **Jo**
Les reports, [1620-41]; — **Lofft,** C. Reports, [1772-74]; — **Popl**
Reports and cases, [1592-97]; — **Rolle, H.** Les reports de di
[1614-25]; — **Siderfin, T.** Les reports, [1657-70]; — **Yelvert**
Reports, [1602-12].

— *Courts.* *See* **Fisher,** R. A. Digest of decisions, 1870-80; — **Law**
Rose, G. Cases in bankruptcy, 1810-16.

— - *See* **O'Malley,** E. L., *and* **Hardcastle,** H. Reports, [1880], v.

— *Foreign Office.* Reports from her Majesty's representatives res
tenure of land in the several countries of Europe, 1869-70. Lo
2 v. f°. [1]

— *High Court of Chancery.* *See* **Dickens, J.** Reports, [1559-1792]
E., *and* **Walker,** J. Reports, 1819-21.

— *House of Lords.* *See* **Brown, J.** Reports, 1701-79.

— *Parliament.* Local acts, 1st session, 22d Parliament, [1880]. I
4 v. l. 8°. [1]

— - Minister of commerce and agriculture. Debate in the Hous
mons, July 8, 1879, on the motion of S. S. Lloyd [to establish
of Commerce and Agriculture]. Westminster, [1879]. 8°. 24 p
Hill, Boston.]

— - Parliamentary debates. *See* **Hansard,** T. C.

— - *See* **Jennings,** G. H.; — **Lucy,** H. W.; — **McCalmont,** F. H.

— *Privy Council.* *See* **Knapp,** J. W. Reports, 1829-36.

— *Registrar-General.* 41st annual report of births, deaths, and
1878. Lond., 1879. 8°. [1]

— *Science and Art Department of the Committee of Council on Educ*
report, with appendices. Lond., 1880. 8°. [1]

reat Britain, *continued.*

Secretaries of Legation. Reports from Her Majesty's diplomatic and consular agents abroad, respecting the condition of the industrial classes in foreign countries. Lond., 1870. 8°. [1]

Statistical and Commercial Department of the Board of Trade. Copy of statistical tables relating to emigration and immigration, 1879. [Lond.], 1880. f°. [1]

Agriculture. *See* **Lawes,** J. B., *and* **Gilbert,** J. H.

Biography. *See* **Davidson,** J. M.; — **De Peyster,** F.

Commerce. *See* **Atkinson,** W. P.

Finance. *See* **Thornton,** H.

Government and Politics. *See* **Buxton,** S. C.; — **Duff,** M. E G.

History. *See* **Annual** register; — **Bailey,** A.; — **Green,** J. R.

eece. *See* **Coulanges,** F. de; — **Lestoile,** P.; — **Sergeant,** L.; — **Timayenis,** T. T.

eeley, Horace, *editor.* Art and industry as represented in the exhibition at the Crystal Palace, N.Y., 1853-4. N.Y., 1853. 12°. [3]

een, Francis M. Telegraphic determination of longitudes on the east coast of South America, 1878-79. *See* **United States.** *Bureau of Navigation.*

een, John Richard. History of the English people. Vol. 4. [With a general index to v. 1-4.] N.Y., 1880. 8°. Maps. [1]

Contents.

Vol. **4.** The revolution, 1683-1760. Modern England, 1760-1815.

een, Samuel Abbott. A centennial address, Cambridge, June 7, 1881, before the Massachusetts Medical Society. Groton, 1881. 8°. [3, *Author.*]

The early records of Groton, Mass. 1662-1707. Groton, 18[illegible]0. 8°. [1]

Historical address, Groton, Mass., Feb. 20, 1880, at the dedication of three monuments erected by the town. Groton, 1880. 8°. 56 p. [1]

Percival and Ellen Green [and their descendants]. *n.p.,* [1861]. 8°. 5 p. [3, *Author.*]

een, Samuel Swett. The relation of the public library to the public schools: a paper read at the meeting of the American Social Science Association, Saratoga, Sept. 7-11, 1880. Bost., 1880. 8°. 18 p. [3, *Author.*]

Reprinted from the Journal of social science.

een family. *See* **Green,** S. A.

een Mount Cemetery, *Montpelier, Vt.* Services at the dedication, Sept. 15, 1855, with the rules and regulations. Montpelier, 1855. 8°. 41 p. [2]

eene, Francis V. Sketches of army life in Russia. N.Y., 1880. 12°. [1]

eene, Welcome A. Historical sketch of Lincoln, R. I. *See* **Lincoln.**

eene, William B. Mutual banking: showing the radical deficiency of the present circulating medium and the advantages of a free currency. N.Y., [1870]. 8°. 52 p. [1]

eig, John Kinloch. Bank note and banking reform: with suggestions for a new banking act. Lond., 1880. 8°. 25 p. [1]

iswold, S. S. Historical sketch of Hopkinton, [R.I.], 1757-1876. Delivered July 4, 1876, per vote of the town council. Hope Valley, R.I., 1877. 16°. 94, (2) p. [1]

iswold, Whiting. Address at the opening of court in the new court house in Greenfield, Mass., March 18, 1873. Greenfield, 1873. 8°. 51 p. [2]

oesbeck, W. S. Gold and silver. Address before the American Bankers' Association, Sept. 13, 1877. Cincin., 1877. 8°. 32 p. [1]

oton, *Mass.* *See* **Green,** S. A.

First Parish Meetinghouse. [A woodcut representing the meetinghouse before it was remodelled in 1839.] [3, *Samuel A. Green, M.D., Boston.*]

Groton Heights (*Conn.*) **Centennial Committee.** The battl
Heights; the massacre of Fort Griswold; and the burning o
don. Historical sketch by J. J. Copp, and address by L. W.
anniversary, Sept. 6, 1879. *n.p.*, 1879. 8°. 30 p. [3, *Rev.*
Bacon, Norwich, Conn.]

Groveland, *Mass.* Annual report of the auditors for the year
29, 1868. Haverhill, 1868. 8°. [2]

Guest, William Henry. *See* **De Peyster, F.**

Guise. Society of the Familistère. *See* **Godin,** J. B. A.

Gulliver, John Putnam. Christianity and science. Address, at
ration as Stone professor, Andover Theological Seminary, J
With a memorial of the founder, *etc.* Andover, 1880. 8°
Author.]

— Introductory essay to "Wood's Bible animals." *n.p.*, [1880]
[3, *Author.*]

Habeas corpus. *See* **Massachusetts.** *General Court.*

Haines, Elijah M. Compilation of the laws of Illinois relating
organization, *etc.* *See* **Illinois.** *General Assembly.*

Hale, Edward Everett. The centennial of the constitution.
preached at the South Congregational Church, Jan. 11, 1880.
12°. 12 p. [3, *Author.*]

— Genealogy of the family of Capt. Nathan Hale. [Hartfor
(22) p. [3, *Author.*]

An appendix to I. W. Stuart's life of Capt. Nathan Hale.

Hale, George Silsbee (?) Joel Parker. Camb., 1876. 8°. 37 p. [3
M.D., Boston.]

From the American law review for Jan. 1876.

Hale, Nathan. *See* **Hale, E. E.**

Hall, Everard. A digested index to the Virginia reports, from
to 2d Randolph inclusive. [With] rules of the Court of Appe
Court, and Courts of Chancery, *etc.* Richmond, 1825. 8°. [1]

Hall, James. Corals and bryozoans of the lower Helderberg
bany, 1880. 8°. 38 p. [3]

Reprinted from the 32d annual report of the State Museum of Natural Histo

— Descriptions of new species of fossils from the Niagara forma
dron, Indiana. Albany, 1879. 8°. 20 p. [3]

Hall, William Edward. International law. Oxford, 1880. 8°. x

Hallock, William A Brief sketch of the Hallock ancestry in
States: prepared for the memoir of Jeremiah and Moses Ha
[186-]. 16°. (16) p. [1]

Hallock family. *See* **Hallock,** W. A.

Ham, John Randolph. The Dover (N.H.) physicians. Read bef
Medical Society, June 17, 1879. Concord, 1879. 8°. 22 p. [3,

Hamersly, Lewis R., *editor.* A naval encyclopædia. Phila.
1880]. l. 8°. vii, 1017 p. [1]

Hamersly, Thomas H. S., *compiler.* Complete regular army re
United States: for one hundred years, 1779–1879. Wash., 18
928, 381, xxxvi p. [1]

Contains also the volunteer general staff during the war with Mexic
appointments by the president in the volunteer service during the rebellion
tory of the Department of War and various tables relating to the army.

Hamilton, Alexander. *See* **Depew,** C. M.; — **Hamilton,** J. C.; —
S. M.; — **Williams,** J.

Hamilton, Edward. Terminal facilities. Argument before
committee of the Massachusetts Legislature, Feb. 20, 1879, rel
minal grounds in Boston. Bost., 1879. 8°. 15 p. [3]

amilton, John Church. Life of Alexander Hamilton. A history of the United States as traced in his writings and in those of his contemporaries. With portraits. Bost., 1879. 7 v. 8°. [1]

amilton, Leonidas. Border states of Mexico: Sonora, Sinaloa, Chihuahua and Durango. Complete guide for travellers and emigrants. San Francisco, 1881. 8°. Maps. [1]

amilton, *O. Board of Education.* Hamilton public schools. Annual report, 1880. Hamilton, 1880. 8°. [3]

amilton Club series. No. 1. N.Y., 1865. 8°.

Contents.

No. 1. **Williams,** J. Life of Alexander Hamilton.

amilton College, *Clinton, N.Y.* Catalogue of the corporation, officers and students, 1858/9, 62/3, 68/9, 71/2; 61st-68th annual catalogue of officers and students, 1872/3-79/80. Clinton, 1858-79. 8°. [3]

Catalogus senatus academici, et eorum qui munera et officia academica gesserunt, [1846, 74, 77]. Uticæ, Clintoniæ, 1846-77. 8°. [3]

Curran prize examination, 1866-68; 15th-16th, 18th-23d, 25th examination, 1870-71, 73-78, 80. *n.p.*, 1866-80. 8°. [3]

Exercises at the dedication of the Kirkland monument, in the cemetery at Hamilton College, June 25, 1873, and at the meeting of the Society of Alumni. Utica, 1873. 8°. 54, 7 p. Portrait. [3]

5th, 8th Kellogg prize examination, 1860, 63. [Utica, 1860-63.] 8°. [3]

Memorial addresses on the character and public services of Samuel Ware Fisher, Hamilton College, Jan. 29, and in Utica, Feb. 8, 1874; with a historical sketch of Westminster Church, [Utica]. Utica, 1874. 8°. 59 p. Portrait. [3]

Public exercises at the inauguration of Samuel Gilman Brown as the 7th president, July 17, 1867. Hamilton College, 1867. 8°. 76 p. [3]

Public exercises at the inauguration of Samuel Ware Fisher as the 6th president, Nov. 4, 1858. Utica, 1858. 8°. 71 p. [3]

Perry H. Smith Library Hall. History of the Library Hall, with commemorative exercises, 1866, 68, 72. Utica, 1872. 8°. 88 p. Illus. [3]

ammatt, Abraham. Hammatt papers, no. 2. The early inhabitants of Ipswich, 1633-1700. Ipswich, 1881. 8°. [3, *Augustine Caldwell, Ipswich.*]

ammond, Charles. *See* **Smith, E.**

ammond, William A. Insane asylum reform. 1. The non-asylum treatment of the insane. N.Y., 1879. 8°. 24 p. [3]

Read before the Medical Society of the State of New York, Feb 5, 1879.

ampshire County, *Mass.* Statement of receipts and expenditures of the county for the year ending Dec. 31, 1871. *n.t.p.* [1871.] Broadside. [3]

anover, *Prussia.* **Handelskammer.** Jahresbericht, 1878. Hannover, 1879. 8°. [3, *Hamilton A. Hill, Boston.*]

ansard, Thomas Curson. Parliamentary debates. 3d series. Vol. 250-256. 1880. Lond., 1880. 7 v. 8°. [3]

arden, Edward Jenkins. *See* **Georgia Historical Society.**

ardwick, *Mass.* Report of the selectmen for the year ending March 1, 1860. Also the valuation and tax for 1859. Worcester, [1859]. 8°. [2]

- Valuation and tax for 1860. Worcester, [1860.] 8°. 75, (1) p. [2]

arlem Heights, *N.Y.* *See* **Benedict, E. C.;—New York Historical Society.**

aroun-al-Raschid. *See* **Palmer, E. H.**

arper's new monthly magazine. Vol. 61-62. N.Y., 1880-81. 2 v. 8°. [1]

- Index. Vol. 1-60, 1850-80. Compiled by C. A. Durfee. N.Y., 1881. l. 8°. 721 p. [1]

arper's weekly. Vol. 23-24. N.Y., 1879-80. 2 v. f°. [1]

arris, Benjamin W. The annexation question. Closing argument for the remonstrants against the annexation of Dorchester to Boston, before the committee on towns of the Massachusetts Legislature, April 27, 1869. Bost., 1869. 8°. 51 p. [1]

Harris, Edward Doubleday. An account of some of the desce
Capt. Thomas Brattle. [Bost.], 1867. 8°. (4), 90 p. [1]

Harrison, William Henry, *Pres. of the U.S.* Outlines of the life a
services, civil and military, of Harrison. [*Anon.*] Wash., 1840.
[1]

— *See* **Cushing,** C.

Hart, Charles Henry. A discourse commemorative of the life an
of William Beach Lawrence, before the Numismatic and A
Society of Philadelphia, May 5, 1881. Phila., 1881. l. 8°.
Author.]

Hartford, *Conn. Board of School Visitors.* Annual report, 1880.
1880. 8°. [3]

— *Library Association.* 39th–43d annual report, 1877-81. Hartfor
8°. [3]

Formerly the Hartford Young Men's Institute.

— - Bulletin. Vol. 1-2; 3, no. 1-3. Hartford, 1878-81. 8°. [3]

— *See* **Hawes,** J.

— **Retreat for the Insane.** 57th annual report, 1881. Hartford
[3]

Harvard College. Addresses at the inauguration of Jared Sparks
dent, Jan. 20, 1849. Camb., 1849. 8°. 60 p. [1]

— Annual reports of the president and treasurer, 1879-80. Ca
8°. [3]

— Bulletin. No. 18-19, or v. 2, no. 5-6. Ed. by J. Winsor. [Ca
l. 8°. [3]

In continuation of the Library bulletin.

— Catalogue, 1880-81. Camb., 1880. 12°. [3]

— Examinations for women, 1882. Camb., 1881. 16°. 8 p. [3]

— The foundation of the Massachusetts professorship of natura
With documents relative to its establishment. Bost., 1805. 16°.

— The Harvard index for 1880-81, containing a list of the officers and
of societies, *etc.* Bost., 1880. 16°. [1]

- Subjects for Master's degree in Harvard College, 1655-1791.
arranged, with an introduction and notes, by E. J. Young. Ca
8°. 38 p. [3]

Reprinted from the proceedings of the Massachusetts Historical Society, June,

Weekly calendar. No. 2-3, 5-6, 8-18. March-June, Sept.-Oct., 1
[Camb., 1881] l. 8°.

— *See* **Sibley,** J. L.

— *Divinity School. See* **Gannett,** E. S.

— *Library.* Bibliographical contributions. Ed. by J. Winsor. No.
Camb., 1879-80. l. 8°. [3]

Contents.

No. 2. **Winsor,** J. Shakespeare's poems. A bibliography of the earlier edit
3. **Norton,** C. E. List of the principal books relating to the life and work
Angelo.
4. **Winsor,** J. Pietas et gratulatio. An inquiry into the authorship of the se
5. List of apparatus available for scientific researches involving accurate me
contained in different American laboratories.
6. Collection of books and autographs bequeathed to Harvard College Librar
Sumner.
9. **Goodale,** G. L. The floras of different countries.
11. **Scudder,** S. H. The entomological libraries of the United States.

— - Bulletin, no. 17. Jan. 1881. Vol. 2, no. 4. [Camb., 1881.] l. 8°.

— *Museum of Comparative Zoölogy.* Annual report of the curato
Camb., 1880. 8°.

— - Bulletin. Vol. 6, no. 8-11; v. 7 (geological series, no. 1); v. 8
1880-81. 8°. [3]

— - Memoirs. Vol. 6, no. 1. v. 7, no. 2, part 1. Camb., 1880. 4°.

Contents.

Vol. 6, no. 1. **Whitney,** J. D. The auriferous gravels of the Sierra Nevada o
Vol. 7, no. 2, part 1. **Whitney,** J. D. The climatic changes of later geologi

Harvard College, *continued.*

— *Society of Christian Brethren.* [Historical sketch, constitution, and list of members] Bost., 1854. 16°. 16 p. [4]

Harvard register. Vol. 1–3. Camb., 1880–81. 3 v. 4° and 8°.

Hassam, John Tyler. Boston taverns, with some suggestions on the proper mode of indexing the public records. Bost., 1880. 8°. 14 p. [3, *Author.*]

— Early Suffolk deeds. Bost., 1881. 8°. 17 p [3, *Author.*]

— Ezekiel Cheever and some of his descendants. Bost., 1879. 8°. 64 p. [3, *Author.*]

— The Hassam family. Bost., 1870. 8°. 10 p. [3, *Author.*]

— Notes and queries concerning the Hassam and Hilton families. Bost., 1880. 8°. 12 p. [3, *Author.*]

— Some of the descendants of William Hilton. Bost., 1877. 8°. 18 p. [3, *Author.*]

The six preceding pamphlets were reprinted from the New-England historical and genealogical register. They are bound together with a general title-page, and are lettered "Antiquarian and genealogical papers."

Hassam family. *See* **Hassam, J. T.**

Hastings, David R. Reports, [1879–80]. *See* **Maine.** *Supreme Judicial Court.* Reports, v. 70.

Hastings family. *See* **Adams, H. B.; — Buckminster, L. N. (H.)**

Hatfield, Edwin F. History of Elizabeth, N.J.; including the early history of Union County. N.Y., 1868. 8°. 701 p. Portraits and illus. [1]

Hatfield, *Mass.* Reports of the selectmen, 1865–6. Northampton, 1866. 8°. [2]

Haven, Gilbert. *See* **Wentworth, E.**

Haverford College, *Haverford, Penn.* Catalogue of officers and students, 1880–81. Phila., 1881. 12°. [2]

— Report of the managers, 1880. Phila., 1880. 8°. [2]

Haverhill, *Mass.* *See* **Hopkins,** G. M.

Haverhill directory. Greenough's directory of Haverhill, 1880; added, a directory of Bradford. Haverhill, 1880. 8°. Map. [1]

Hawaiian Islands. *Board of Education.* Biennial report, 1880. *n.p.*, [1880]. 16°. [2]

Hawes, Joel. An address delivered at the request of the citizens of Hartford, 9th Nov., 1835, the close of the 2d century from the first settlement. Hartford, 1835. 12°. 80 p. [1]

Hawkes, Nathan M. Elevated railways. Report to the Senate of Massachusetts for the committee on street-railways. Bost., 1879. 8°. 10 p. [4]

Hayes, Augustus Allen, *Jr.* New Colorado and the Santa Fé trail. Illus. N.Y., 1880. 8°. Map. [1]

Hayes, John Lord. American textile machinery: its early history, characteristics, *etc.* Camb., 1879. 8°. 72 p. [3, *Author.*]

From the bulletin of the National Association of Wool Manufacturers.

— An argument for a protective tariff. The farmer's question: being a reply to the Cobden Club tract entitled "The Western farmer of America." By Jonathan B. Wise, [*pseud.*]. Camb., 1880. 8°. 40 p. [3]

— Notes upon indigo. Bost., 1873. 8°. 79 p. [3, *Author.*]

From the bulletin of the National Association of Wool Manufacturers.

— Protection a boon to consumers: an address before the National Association of Knit Goods Manufacturers, 2d annual meeting, May 1, 1867. Bost., 1867. 8°. 55 p. [3, *Author.*]

— Sheep husbandry in the South. Prepared at the request of Hon. A. H. Stephens, of Georgia, and others. Bost., 1878. 8°. [3, *Author.*]

From the bulletin of the National Association of Wool Manufacturers.

— The solidarity of the industries as illustrated by the relations of the woollen manufacture. Address at the fair of the American Institute, N.Y., Oct. 13, 1870. Camb., 1870. 8°. 28 p. [3, *Author.*]

Hayes, John Lord, *continued.*

— **Tapestry, and its relations to decorative art. A lecture before th**e
tive Art Society of New York, Nov., 1878. Bost., 1879. 8°.
Author.]

From the bulletin of the National Association of Wool Manufacturers.

Hayter, Henry Heylyn. Victorian year-book for 1879-80. 7th ye
bourne, 1880. 8°. Map. [3]

Hazard, Rowland. The Credit Mobilier of America. A paper re
the Rhode Island Historical Society, Feb. 22, 1881. Providence
42 p. [3, *Amos Perry, Providence, R.I.*]

Hazeltine, Mayo W. British and American education. The unive
the two countries compared. N.Y., 1880. 32°. [1]

Heald family. *See* **Drury, E.**

Health. *See* **Boston.** *City Council;* — **Bowditch,** H. I.; — **D**
Verein für Öffentliche Gesundheitspflege; — **Kingsley,** C.; -
chusetts. *State Board of Health, etc.;* — **National Board of**
— **Providence.** *Superintendent of Health;* — **Wilkinson,** G.

Health and education. *See* **Lincoln, D. F.**

Healthy dwellings. *See* **Galton, D.**

Heard family. *See* **Edwards,** J. H.

Hempstead, *N.Y.* *See* **Onderdonk,** H., *Jr.*

Henderson, H. A. M. Manual of Kentucky school architecture. F
1876. 8°. [2]

Hennepin, Louis. A description of Louisiana. Tr. from the ed.
[With a notice of Hennepin], by **J. G. Shea.** N.Y., 1880. 8°. M

An appendix contains the account of the voyage down the Mississippi from the
découverte;" an account of Hennepin's capture, from the Margry papers; an
Hennepin's canoe exploration in La Salle's letter of Aug. 22, 1682; an account of
expedition, by the Chevalier Tonty, and Du Lhut's report to the Marquis de Seign

— *See* **Minnesota Historical Society.**

Henniker, *N.H.* *See* **Cogswell,** L. W.

Henry, Joseph. A summary of researches in sound: conducted i
vice of the United States Light-House Board, 1865-77. Wash.,
Illus. [3]

From the Smithsonian report for 1878.

— *See* **Cameron,** H. C; — **Taylor,** W. B.; — **United States.** *Congr*

Henry, Luther. *See* **Washington County bar.**

Heredity. *See* **Moody,** L.

Hesse. *See* **Gewerbeblatt;** — **Zeitschrift.**

Heyward, W. Izard. Table of cases cited and compared in the
vols. of Georgia reports. Jersey City, N.J., 1881. 16°. [1]

Heywood, E. H. Hard cash: an essay to show that financial m
hinder enterprise; that panics and business revulsions will be
only through free money. Princeton, 1874. 8°. 23, (1) p. [1]

— **Yours or mine.** An essay to show the true basis of property
causes of its unequal distribution. Bost., 1869. 8°. 22 p. [1]

Higginson, Francis. *See* **Felt,** J. B.

Higginson, Thomas Wentworth. Oldport days. With illus. B
16°. [1]

Hilgard, Eugene W. Report on the cotton production of Louisi
United States. *Census Office.*

Hill, Alonzo. A discourse on the life and character of the Rev.
Thayer, D.D., Lancaster, Mass., June 29, 1840. Worcester, 1840.
[3, *Henry S. Nourse, Lancaster.*]

Hill, Charles S. Our merchant marine. A voice for American c
3d ed., revised. N.Y., 1877. 16°. 64 p. [1]

Hill, Hamilton Andrews. Commercial associations; their uses and
nities. Bost., 1869. 8°. 27 p. [3, *Author.*]

ll, Hamilton Andrews, *continued.*

The exemption of church property from taxation: a paper read before the American Statistical Association, May 5, 1876. Bost., 1876. 8°. 38 p. [3, *Author.*]

Light dues in Great Britain. Bost., 1875. 8°. 16 p. [3, *Author.*]

The movement of the farmers of the Western States against railway and other monopolies. Lond., 1874. 8°. 13 p. [3, *Author.*]

A paper read at the Social Science Congress, Norwich, Oct., 1873.

A plea for our foreign commerce. *n.p.*, [1868]. 8°. 16 p. [1]

From Hunt's Merchants' magazine, April, 1868.

[Various reports and resolves of the committees on finance and taxation of the Massachusetts Legislature, 1878. Bost., 1878.] 8°. [3, *Author.*]

nd others. Arguments in favor of the freedom of immigration at the port of Boston, addressed to the committee on state charities of the Massachusetts Legislature, April, 1871. Bost., 1871. 8°. 44 p. [3, *Author.*]

ll, *Sir* Rowland *and* George Birkbeck. Life of Sir Rowland Hill and the history of penny postage. Lond., 1880. 2 v. 8°. Portrait. [1]

ll, William F. Ancient deeds from the Indians to the town of Dedham, copied from the original deeds on file in the town clerk's office, Dedham. *Reproduced with hektograph.* 1881. sm. 4°. 15 p. [3, *Author.*]

ll family. *See* **Eliot,** *Mass.*

lton family. *See* **Hassam,** J. T.

ne, Orlo D. Early Lebanon. An historical address delivered in Lebanon, Conn., July 4, 1876. With historical notes, by N. H. Morgan. Hartford, 1880. 12°. Portrait. [1]

nsdale, Burke A. Our common schools: a fuller statement of the views set forth in "Our common-school education," with especial reference to the reply of A. J. Rickoff. Cleveland, 1878. 8°. 72 p. [3]

storical magazine. Vol. 8, no. 7. July, 1864. N.Y., [1864]. sm. 4°. [3]

Same. 3d series. Vol. 3, no. 1-4, [and] extra no. 2-5. Morrisania, N.Y., [1874-75]. sm. 4°. [3]

No more of this volume was printed.

storical Society of New Mexico. Inaugural address of W. G. Ritch delivered before the Society, Feb. 21, 1881, Santa Fé. Constitution and by-laws. Santa Fé, 1881. 8°. 20 p. [3]

story. *See* **Foulke,** W. P.

tchcock, Charles Henry. 1st annual report upon the geology and mineralogy of New Hampshire. *See* **New Hampshire.** *State Geologist.*

The visitor's guide to the public rooms and cabinets of Amherst College; with a preliminary report. Amherst, 1862. 12°. [4]

itchcock, Edward. The department of physical education and hygiene in Amherst College. Bost., 1879. 8°. 10 p. [3]

A report of twenty years experience in the department of physical education and hygiene in Amherst College, June 27, 1881. Amherst, 1881. 8°. 18 p. [3]

x, Daniel. *See* **Andrews,** S. M.

oar, George Frisbie. The place of the college graduate in American life. An address before the social union at Amherst College, July 2, 1879. Worcester, 1879. 8°. 33 p. [3]

The threatened usurpation. Speech in the Senate of the United States, March 25, 1879. Wash., 1879. 8°. 15 p. [3]

odgman, Edwin R. Patriotism of Westford in 1775. *n.p.*, [18-]. 8°. 4 p. [3, *Author.*]

odgson, Joseph. The cradle of the Confederacy; or, The times of Troup, Quitman and Yancey. Sketch of southwestern political history to 1861. Mobile, 1876. 8°. [1]

Holden, A. W. History of Queensbury, N.Y., with biographica and some account of the aborigines of northern New York. A 8°. Portraits and illus. [1]

Holland, Henry Ware. William Dawes, and his ride with Paul essay read before the New England Historic Genealogical So 7, 1876; appended, a genealogy of the Dawes family. Bost., Portraits. [1]

Holland. *See* **Amicis, E.** de.

Holliston, *Mass.* *See* **Morse, A.**

Holmes, Oliver Wendell. Poetical works. Household ed. 16°. [1]

Holmes, Oliver Wendell, *Jr.* The common law. Bost., 1881. 8°.

Holub, Emil. Seven years in South Africa, between the diamond the Zambesi, 1872-79. Tr. by E. E. Frewer. With illus. a Bost., 1881. 2 v. 8°. [1]

Holyoake, George Jacob. Among the Americans, and A strange ica. Chicago, 1881. 16°. [1]

Holyoke, *Mass.* The city of Holyoke, its water-power and its Holyoke, *n.d.* f°. 15 p. Map and illus. [3]

Holyoke directory, 1880-81. Including South Hadley Falls. 1880.] 8°. Map. [1]

Homicide. *See* **Redfield, H. V.**

Hooker, Herman. An appeal to the Christian public, on the ev policy of the church engaging in merchandise; and setting wrong done to booksellers [by] charity publication societie Phila., 1849. 8°. 24 p. (**Pm.,** v. 118.) [1]

Hooker, John. Reports, [1879-80]. *See* **Connecticut.** *Suprem Errors.* Reports, v 47.

Hooper, Arthur. History of Bridgewater [Mass.], in the rebellio With the address of D. W. Waldron, Memorial Day, 1880.] 8°. 85, (3) p. [1]

Hooper, Calvin L. Report of the cruise of the Corwin in the Ar 1880. *See* **United States.** *Revenue Marine Service.*

Hooper, Samuel. *See* **Lowell, J. A.**

Hopkins, G. Morgan. Atlas of Beverly, Mass. Phila., 1880. f°.

— Atlas of Marblehead, Mass. Phila., 1881. f°. [1]

— Atlas of Nahant, Mass. Phila., 1880. f°. [1]

— Atlas of Swampscott, Mass. Phila., 1880. f°. [1]

— City atlas of Haverhill, Mass. Phila., 1881. f°. [1]

— City atlas of Lynn, Mass. Phila., 1880. f°. [1]

Hopkinton, *Mass.* *See* **Howe, N.**

Hopkinton, *R.I.* *See* **Griswold, S. S.**

Horticulture. *See* **Iowa.** *State Horticultural Society;* — **Mass Horticultural Society;** — **Missouri.** *State Horticultural* **Nebraska.** *State Horticultural Society;* — **Worcester County tural Society.**

Horton, George F. Horton genealogy; or, Chronicles of the desc Barnabas Horton, of Southold, L.I., 1640. Phila., 1876. 8°. [1]

Horton, Samuel Dana. The monetary situation. An address de request of the American Social Science Association at its me 21, 1878. Cincin., 1878. 8°. 58, xii p. [1]

— Silver and gold and their relation to the problem of resumption. enlarged. Cincin., 1877. 8°. [1]

Horton genealogy. *See* **Horton, G. F.**

Hospitals. *See* **Massachusetts General Hospital;** — **New Eng pital for Women and Children.**

tchkiss, Jedidiah. The city of Staunton, Virginia, and the surrounding country, their condition, resources and advantages. Staunton, [1878]. l. 8°. 48 p. Map. [3]

ugh, Franklin Benjamin. Report upon forestry. *See* **United States.** *Department of Agriculture.*

ughton, Walter R. Conspectus of the history of political parties and the Federal government. Indianapolis, 1880. Map. [3]

vey, William A. A golden anniversary. The Transcript's 50th birthday. [Bost.], 1880. sq. 8°. 51 p. [3, *Editor.*]

ward, James. The tenant farmer: land laws and landlords. Lond., 1879. 8°. 57 p. (**National Liberal Federation.** Practical politics, no. 1.)

ward, Nathan, *Jr.* Cases in the Court of Appeals of New York, [1847–48]. Vol. 1. N.Y., 1869. 8°.

No more published.

ward, Oliver Otis. Nez Perce Joseph. Account of his ancestors, lands, confederates, enemies, *etc.* Bost., 1881. 8°. Portraits and maps. [1]

ward, R. H., *and* **Crocker,** Henry E., *editors.* A history of New England, containing historical and descriptive sketches of the counties, cities and principal towns of New England. Illus. Bost., 1879. 4°. 805 p. [1]

we, John B. The common sense, the mathematics, and the metaphysics of money. Bost., 1881. 16°. [1]

we, Nathanael. A century sermon, delivered in Hopkinton, Mass., Dec. 24, 1815. 4th ed. With a memoir of the author and notes, by E. Nason. Bost., 1851. 8°. 56 p. [2]

wland, C. G. Civil service reform. Chicago, 1881. 18°. 25 p. (Unity leaflets, no. 3.) [3, *Author.*]

Address read before the Michigan conference of Unitarian churches, in Detroit, Oct. 21, 1880.

yt, Henry M. Brief of a title in the seventeen townships in the county of Luzerne: a syllabus of the controversy between Connecticut and Pennsylvania. Read before the Historical Society of Pennsylvania, Nov 10, 1879. Harrisburg, 1879. 8°. Map. [3]

bbard, Edwin, *compiler.* Historical and biographical notes of the family of Towne: genealogical memoranda of the ancestry and descendants of the late John Town of Georgia. Chicago, 1878. 8°. 16 p. [3, *Compiler.*]

The Towne family memorial. Chicago, 1880. 8°. [3, *Author.*]

bbard, William. The happiness of a people in the wisdome of their rulers, *etc.:* sermon, Boston, May 3, 1676, being the day of election there. Bost., 1676. 16°. 63 p [1]

bbell & Craven. The national legal directory, embracing the names of leading attorneys in over three thousand cities and towns in the United States. Also, a synopsis of the collection laws of each state. St. Louis, 1870. 16°. [3, *Augustus Russ, Boston.*]

bner, Charles W. Modern communism. Atlanta, Ga., 1880. 8°. Portrait. [1]

dson, Charles. Memoir of Lemuel Shattuck. *n.t.p.* [Bost., 1880.] 8°. (11) p. [3, *Author.*]

From the proceedings of the Massachusetts Historical Society, June, 1880.

dson, John Elbridge. United States digest, 1879. *See* **United States** digest, new series, v. 10.

dson, *N.Y.* *See* **Miller,** S. B.

ghes, Robert W. Reports of cases decided in the Circuit and District Courts of the United States, 1878–79. Vol. 3. Wash., 1880. 8°. [1]

ghes, Thomas. Rugby, Tenn.; account of the settlement founded on the Cumberland plateau by the board of aid to land ownership, limited. With a report on the soils of the plateau by F. W. Killebrew. Lond., 1881. 16°. [1]

Hull directory. *See* **Nantasket.**

Hun, Marcus T. Reports of cases in the Supreme Court of New
81. [Vol. 21-23.] Albany, [1880-81]. 3 v. 8°. (Supreme Co
v. 28-30.)

Hunnewell, James. Journal of the voyage of the "Missiona
Boston to Honolulu, 1826. With maps and plates, and a me
F. Hunnewell]. Charlestown, 1880. 4°. xxvii, 77 p. Po
Editor.]

Hunnewell, James Frothingham. Bibliography of Charlestown,
Bunker Hill. Bost., 1880. 8°. [1]

Huntoon, Benjamin. *See* **Huntoon,** D. T. V.

Huntoon, Daniel T. V. Memoir of Rev. Benjamin Huntoo
Bost., 1874. 8°. 10 p. [3, *Author.*]

— Oliver Smith Chapman. 1811-77. [*Anon.*] *n.p.*, 1877. 8°.
Author.]

Hurlbert, J. Beaufort. Physical atlas with coloured maps, s
geographical distribution of plants yielding food, climates, flor
of the dominion of Canada. [Ottawa, 1880.] 4°. [2]

Huron, Lake. *See* **Rottermund, E. S**, *comte* de.

Hutchinson, William F. The Bay fight; a sketch of the battl
Bay, Aug. 5, 1864 Providence, 1879. sm. 4°. 28 p. (**Rho**
Soldiers and Sailors Hist. Soc. Personal narratives, no. 8.)

Huth, Alfred Henry. The life and writings of Henry Thom
N.Y., 1880. 8°. [1]

Hutton, *Sir* Richard. Reports, [in the Court] of Common Pleas,
many choice cases, judgments, and resolutions, in points of la
Lond., 1656. f°. [1]

With MS. notes.

Huxley, Thomas Henry. On the physical basis of life. New H
8°. 24 p. [1]

From the Fortnightly review for Feb., 1869.

Hyde, Charles M. *and* Alexander. The centennial celebration, a
nial history of Lee, Mass. Springfield, 1878. 8°. Portraits and

Hyde Park, Dedham, and Norwood directory for 1876-7; Hyde P
and business directory for 1879. Bost., 1876-79. 2 v. 8°. [1]

Idaho. *Legislative Assembly.* General laws, including the code o
cedure, passed at the 11th session, 1880-81. [Boise City], 1881.

— - Journal of the Council, 11th Legislative Assembly, 1880-81. [
1881. 8°. [2]

— - Journal of the House of Representatives, 11th Legislative
1880-81. [Boise City], 1881. 8°. [2]

— *Superintendent of Public Instruction.* 2d biennial report, 1869-
1873-80. Boise City, 1870-80. 8°. [2]

Idiocy. *See* **Massachusetts.** *School for Idiotic and Feeble-Minded*

Illinois. *Appellate Courts.* *See* **Bradwell, J. B.** Reports, v. 7-8.

— *Auditor of Public Accounts.* Annual report, 1869, [including the
report]; 4th-8th annual insurance report, 1872-76; 12th report,
Springfield, 1869-80. 7 v. 8°. [2]

— *Board of State Commissioners of Public Charities.* 6th bienn
Springfield, 1880. 8°. [2]

— - Tabular statements accompanying the 6th biennial report.
1880. 8°. [2]

— *Canal Commissioners* Report, 1879. Springfield, 1880. 8°. [2]

— *Charitable Eye and Ear Infirmary.* 12th biennial report, 1880.
1880. 8°. [2]

linois, *continued.*

Department of Agriculture. Transactions, with reports from county agricultural boards, 1879. Ed. by S. D. Fisher. Vol. 17, old series. Springfield, 1880. 8°. [2]

The Transactions for 1876 to 1879 contain the 3d to 6th annual reports of the State Dairymen's Association, and the 6th to 9th reports of the State Entomologist.

Eastern Hospital for the Insane. 2d biennial report, 1880. Springfield, 1880. 8°. [2]

General Assembly. A compilation of the laws of Illinois relating to township organization and management of county affairs. New ed., enlarged. By E. M. Haines. Chicago, 1879. 8°. [1]

– Illinois school law, 1872–79. Springfield, 1879. 8°. 80, VIII p. [2]

– *Same.* Circular 19. Amendments to the school law, and acts concerning school officers and school matters, passed in 1881. *h.t.p.* [Springfield, 1881.] 8°. 18 p. [2]

– Journal of the House of Representatives, 9th General Assembly, 1st–2d session, 1834–[36]; 10th General Assembly, 1st session, 1836–[37]; special session, 1837. Vandalia, 1835–37. 4 v. 8°. [2]

– Journal of the Senate, 5th General Assembly, 1st session, 1826–[27]; 9th General Assembly, 1st–2d session, 1834–[36]; 10th General Assembly, 1st session, 1836–[37]; special session, 1837. Vandalia, 1826–37. 5 v. 8°. [2]

– Laws, 32d General Assembly, 1881. Springfield, 1881. 8°. [2]

– Reports made to the 15th General Assembly, 1849; 21st session, 1859, v. 1. Springfield, 1849–59. 2 v. 8°. [2]

Railroad and Warehouse Commission. 9th–10th annual report, 1879–80. Springfield, 1880–81. 2 v. 8°. [2]

Secretary of State. Biennial report, 1878–80. Springfield, 1880. 8°. [2]

Southern Illinois Normal University. 4th biennial report, 1880. Springfield, 1880. 8°. [2]

State Board of Equalization. Proceedings, 1880. Springfield, 1880. 8°. [2]

State Entomologist. 6th–9th report on the noxious and beneficial insects of Illinois, [being] the 1st–4th report by C. Thomas. [Springfield, 1878]–80. 4 v. 8°. (**Illinois.** *Dept. of Agriculture.* Transactions, 1876–79.) [2]

State Library. Catalogue, 1880. Springfield, 1880. 8°. [2]

State Normal University. 22d annual catalogue, 1880. Bloomington, 1880. 8°. [3]

State Superintendent of Common Schools. Report of H. S. Cooley, [1848]. Springfield, 1849. 8°. [2]

State Superintendent of Public Instruction. [1st], 13th biennial report, 1855–56, 1878–80. Springfield, [1857]–81. 8°. [2]

Supreme Court. See **Freeman, N. L.** Reports, 1879–80, v. 93–96; — **Rogers, H. W.** Illinois citations.

linois Wesleyan University, *Bloomington, Ill.* 9th annual catalogue of the officers and students, 1866. Bloomington, 1866. 8°. [4]

lusions. *See* **Sully, J.**

lustrated wood worker. Vol. 1. 1879. *n.p.*, [1879]. l. 8°. [1]

nmigration. *See* **Hill, H. A.**; — **New Mexico.** *Bureau of Immigration*; — **New York,** *State. Commissioners of Emigration*; — **New York Chamber of Commerce**; — **St. Louis Immigration Society.**

dia. *See* **Duncan, G.**

diana. *Department of Statistics and Geology.* 1st–2d annual report, 1879–80. Indianapolis, 1880. 2 v. 8°. Maps and plates. [2]

– General description of the state of Indiana. Indianapolis, 1880. 8°. 14, (2) p. Maps. [2]

Extracted from the 1st annual report of the Bureau of Statistics and Geology, 1879.

General Assembly. Annual reports of the officers of state, [1869], 74–76, 78–80. Indianapolis, 1869–81. 12 v. 8°. [2]

Called "Legislative documents," in 1874.

Indiana, *continued.*

— - Journal of the House of Representatives, 50th-51st sessi
Indianapolis, 1877-79. 2 v. 8°. [2]

— - Journal of the Senate, 49th-51st session, 1875-79. Indianape
4 v. 8°. [2]

— *State Board of Agriculture.* 26th-30th annual report, 1876-80, ir
proceedings of the annual meeting, 1877-81. Vol. 18-22. I
1877-81. 5 v. 8°. Portraits. [2]

— - Premium list of the 29th Indiana state fair, 1881. Indiana
8°. 40 p. Map. [2]

— *Superintendent of Public Instruction.* 28th report, being the 1
report, 1879-80. Indianapolis, 1880. 8°. [2]

— *Supreme Court of Judicature.* Reports of cases. By A. N. M
68-70. 1879-80. Indianapolis, 1880-81. 3 v. 8°. [2]

— - *Same.* Vol. 71. By F. M. Dice, 1880. Indianapolis, 1881. 8°.

— *See* **Cox,** S C.

Indians of North America. *See* **Jackson,** *Mrs.* H. (H.); — **M**
Pumphrey, S ; — **Smithsonian Institution.** *Bureau of E*
Trumbull, J. H.

Indigo. *See* **Hayes,** J. L.

Industrial League of America. Semi-annual reports of off
League, Feb. 1881. Chicago, 1881. 8°. [3]

Ingersoll, Joseph Reed. Memoir of Samuel Breck, vice-presi
Historical Society of Pennsylvania, read before the Society, J
Phila., 1863. 8°. 40, 16 p. [3]

— *See* **Brown,** D. P.

Inglis, James. Our Australian cousins. [By Maori, *pseud.*] Lo
[1]

Insanity *and* **Insane hospitals.** *See* **American** journal of
Association of Medical Superintendents of American I
for the Insane; — **Dewey,** R. S.; — **Great Britain.** *Comm*
Lunacy; — **Hammond,** W. A.; — **Hartford Retreat for the**
Illinois. *Eastern Hospital for the Insane;* — **Ireland.** *Luna*
Kirkbride, T. S.; — **Massachusetts.** *State Lunatic Hospital*
Northampton, etc.; — **Pennsylvania Hospital for the Insa**
land. *General Board of Commissioners in Lunacy;* — **Unit**
Government Hospital for the Insane.

Insects. *See* **Dupont,** E.; — **Missouri.** *State Entomologist.*

Insurance. *See* **Massachusetts;** — **Walford,** C.

Insurance law journal. Vol. 9. N.Y., 1880. 8°. [1]

International arbitration. *See* **American Peace Society.**

International Free Trade Alliance. Our revenue system a
service. Shall they be reformed? N.Y., [1872]. 18°. 41 p. [

International Penitentiary Congress, *Stockholm.* Le Congr
tiaire International de Stockholm. Mémoires et rapports sur
des prisons et du régime pénitentiaire. Par le Dr. Guillaum
Stockholm, 1879. 8°. Portrait. [3]

International review. Vol. 9-10. N.Y., [1880-81]. 2 v. 8°. [1]

International scientific series. Vol. 34. Lond., 1881. 12°.

Namely.

Vol. **34.** **Sully,** J. Illusions.

Iowa. *Board of Railroad Commissioners.* 2d-3d annual report, 1
Moines, 1879-80. 2 v. 8°. [2]

— *Census Board.* Census returns of the different counties of the
Des Moines, 1859. 8°. [2]

— *General Assembly.* Journal of the House of Representatives, 1
Assembly, 1880. Des Moines, 1880. 8°. [2]

va, *continued.*

- Journal of the Senate, 18th General Assembly, 1880. Des Moines, 1880. 8°. [2]

- Legislative documents, 18th General Assembly, 1880. Des Moines, 1880. 4 v. 8°. [2]

- School laws, from the code of 1873, as amended. Edition of 1880. Des Moines, 1880. 8°. [2]

tate Agricultural Society. Report of the secretary, 1879. Des Moines, 1880. 8°. [2]

Contains also the report of the 6th annual convention of the Iowa Fine Stock Breeders' Association, 1880.

tate Horticultural Society. Transactions, 1879, being the proceedings of the 14th annual meeting, 1880, with the proceedings of the Eastern Iowa Horticultural Society also of the Western Iowa Horticultural Society and other local societies for 1879. Des Moines, 1880. 8°. [2]

uperintendent of Public Instruction. Advance sheets of biennial report. Statistics for 1880. Des Moines, 1880. 8°. [2]

upreme Court. Reports of cases in law and equity, [1879-80]. By J. S. Runnells, reporter. Vol. 15-17, being v. 52-54 of the series. N.Y., 1880-81. 3 v. 8°. [2]

ee **Stuart, A. A.**

va College, *Grinnell, Iowa.* Catalogue, 1879/80, 80/81. Grinnell, 1879-80. 8°. [3]

wich, *Mass. See* **Antiquarian** papers. •

land. *Commissioners of National Education.* 46th report, 1879. Dublin, 1880. 8°. [1]

igh Court of Chancery. See **Schoales, J.,** *and* **Lefroy, T.** Reports, 1802-[06].

unacy Office. 29th report on the district, criminal, and private lunatic asylums in Ireland. Dublin, 1880. 8°. [1]

ee **Boucicault, D.**; — **Duffy,** *Sir* C. G.; — **George, H.**; — **Richey, A. G.**; — **Scanlan, J. F.**; — **Thornton, W. T.**; — **Trevelyan,** *Sir* **C. E.**

sh, James R. Historical sketch of Richmond, [R.I.], 1747-1876. Delivered July 4, 1876. Hope Valley, R.I., 1877. 16°. 96 p. [1]

n. *See* **American Iron and Steel Association.**

ing, Edward. Trial of the Rev. E. Irving. A cento of criticism. 9th ed. Lond., 1823. 8°. 96 p. [1]

ing, Henry. The stage. Address at the Perry Barr Institute, near Birmingham, March 6, 1878. Lond., 1878. 8°. 32 p. [3]

and life. *See* **Wallace, A. R.**

es of Shoals. *See* **Thaxter, C.**

ly. *Direzione dell' Industria e del Commercio.* Annali dell' industria e del commercio, 1879. Num. 11. Atti della commissione consultiva degli istituti di previdenza e sul lavoro. Roma, 1879. 8°. [2]

irezione di Statistica. Annali di statistica. Série 2a., v. 6, 17-24. 1880-81. Roma, 1880-81. 8 v. 8°. [2]

- Annuario statistico italiano, 1881. Roma, 1881. 8°. [2]

- Debiti provinciali, 1878. Roma, 1880. l. 8°. [2]

- Gli istituti e le scuole dei sordomuti in Italia. Relazione del Dott. E. Raseri. Roma, 1880. l. 8°. 69 p. [2]

- Movimento dei depositi a risparmio presso le casse di risparmio e presso altri istituti di credito in Italia, confrontati con alcuni altri fattori dell' economia nazionale. Roma, 1880. Broadside. [2]

- Movimento della navigazione nei porti del regno. Parte 1a-2a. Anno 19, 1879; Appendice. Roma, 1880. 3 v. l. 8°. [2]

- Popolazione. Movimento dello stato civile. Anno 18, 1879. Introduzione [ed] parte 2a. Roma, 1880. 2 v. l. 8°. [2]

Italy. *Direzione di Statistica, continued.*

— - Statistica dei debiti comunali, 1879. Roma, 1880. l. 8°. [2]

— - Statistica della emigrazione italiana all' estero nel 1879, con
quella degli anni precedenti. Roma, 1880. l. 8°. [2]

— - Statistica elettorale politica. Elezioni generali politiche, 1
1880. Roma, 1880. l. 8°. [2]

— - Statistique internationale des banques d'émission. Allema
1880. l. 8°. [2]

— - *Same.* Autriche-Hongrie, Belgique, Pays-Bas, Suède, Norvè
Rome, 1881. l. 8°. [2]

— - *Same.* France. Rome, 1881. l. 8°. [2]

— - *Same.* Russie. Rome, 1881. l. 8°. 59 p. [2]

— *Ministero d' Agricoltura, Industria e Commercio.* Annali d
Critica e riforma del metodo in antropologia fondate sulle leg
e biologiche dei valori seriali e sull' esperimento, per E. Mors
1880. 8°. [2]

— - Istruzioni scientifiche pei viaggiatori. Raccolte da A. Issel [
Roma, 1881. 8°. [2]

— *Ministero delle Finanze e del Tesoro.* Statistica dei pensionati de
decennio 1868-77 e nell' anno 1878. Compilata dall' ingegn
barino. Roma, 1879. 8°. [2]

Jackson, A. M., *and* A. M., *Jr.* Cases in the Court of Appeals of
See **Texas.** *Court of Appeals.* Cases, v. 8-9.

Jackson, Andrew, *Pres. of the U.S.* *See* **Richmond. Anti-Ja
vention.**

Jackson, *Mrs.* Helen ("H. H.," *formerly Mrs.* Hunt). A century
A sketch of the United States government's dealings with
Indian tribes. By H. H. N.Y., 1881. 12°. [1]

Jackson, Henry, *and* **Lumpkin,** J. H. Reports, 1878-79. *S*
Supreme Court. Reports, v. 60-63.

Jackson, Thomas Jonathan (*called Stonewall*). *See* **Allan,** W.

Jacob, Edward, *and* **Walker,** John. Reports of cases in the H
Chancery during the time of Lord Chancellor Eldon, 181
1821-23. 2 v. 8°. [1]

Jaffrey, *N.H.* *See* **Cutter,** D. B.

Jamaica. *See* **Anderson,** W. W.

Jamieson, Robert. Political economy for business people. Lon
[1]

Japan. *See* **Bird,** I. L.; — **Mossman,** S.

Jarvis, George Atwater, *and others.* The Jarvis family; descen
first settlers of the name in Massachusetts and Long Island
1879. 8°. Portraits. [3, *Author.*]

Jarvis family. *See* **Jarvis,** G. A.

Jasus, *pseud.* Billy Tooke; a Finsbury pantomime. Lond., 184
(**Pm.,** v. 119.) [1]

Jenks, Henry Fitch. The Boston Public Latin School, 1635-
Camb., 1881. 12°. 24 p. [3, *Moses King, Cambridge.*]

Jenks, William. Address. *See* **New England Historic, G
Society.**

Jennings, George Henry, *compiler.* Anecdotal history of the Br
ment. Lond., 18 0. 8°. [1]

Jersey, *prison-ship.* *See* **Dring,** T.

Jersey City, *N.J.* *See* **Farrier,** G. H.

Jervis, John B. The question of labour and capital. N.Y., 1877.

Jogues, Isaac. Novum Belgium: an account of New Netherla
With a fac-simile of his original manuscript, portrait, a ma
by J. G. Shea. N.Y., 1862. 4°. 53 p. [1]

ns Hopkins University, *Baltimore, Md.* 1st–2d, 5th annual report, 1776–77, 80. Balt., 1876–80. 8°. [3]

irculars. No. 1-11. Dec. 1879–July, 1881. *n t.p.* Balt., 1879–81. 4°. [3]

nson, Andrew, *Pres. of the U.S.* *See* **Boutwell, G. S.**

nson, David N. Sketches of Lynn; or, The changes of fifty years. Lynn, 1880. sq. 16°. Illus. [3, *Author.*]

nson, Reverdy. Reply to the paper which Judge-Advocate Holt furnished to the President, urging General Porter's condemnation. [N.Y., 186-.] 8°. 56 p. [3]

nson, Richard W. Memoir of Maj.-Gen. George H. Thomas. Phila., 1881. 8°. Portraits. [1]

nson family. Sketch of the Johnson family gathering at Southboro, Mass., June 26, 1878, and the historical address by J. H. Temple, *etc.* Marlboro, 1878. 8°. 12 p. [1]

e **Felton, C.**

nson protocol. *See* **Kellogg, E. H.**

nston, (Alexander) Keith, *Jr.* Africa. With ethnological appendix by A. H. Keane. Maps and illus. 2d ed. Lond., 1880. 8°. xvi, 611 p. **Stanford, E.** Compendium of geog. and travel.) [1]

physical, historical, political, and descriptive geography. Maps and illus. Lond., 1880. 8°. [1]

nston, Henry P. Observations on Judge Jones' loyalist history of the American revolution. N.Y., 1880. 8°. 86 p. [1]

he Yorktown campaign and the surrender of Cornwallis, 1781. Illus. N.Y., 1881. 8°. [1]

nston, Shepherd. Historical sketches of the public school system of Chicago. *See* **Chicago.** *Board of Education.*

es, Charles Colcock, *Jr.* Address before the Confederate Survivors' Association, Augusta, Ga., 1st–3d annual meeting, April 26, 1879–81. Augusta, 1879–81. 8°. [3, *Author.*]

nniversary address before the Georgia Historical Society, 14th Feb., 1881. Savannah], 1881. 8°. 40 p. [3, *Author.*]

ntiquities of the southern Indians, particularly of the Georgia tribes. N.Y., 1873. 8°. Illus. [1]

ernando de Soto. Adventures, and route pursued during his march through Georgia. Savannah, Ga., 1880. 8°. 42, (1) p. Portrait. [3, *Author.*]

Read before the Georgia Historical Society.

es, Charles H. A short life of William Ewart Gladstone, with extracts from his speeches and writings. N.Y., 1880. 16°. [1]

es, Horatio Gates. An address at the annual meeting of the Historical Society of Pennsylvania, Feb. 9, 1869, [commemorative of Andrew Bradford, founder of the newspaper press in the middle states]. Phila., 1869. 8°. 36 p. [3]

es, Leonard Augustus. A treatise on the law of mortgages of personal property. Bost., 1881. 8°. xxxv, 657 p. [3, *Author.*]

es, Samuel, *and* **Spencer,** James C. Reports of cases in the Superior Court of the city of New York, [1879–80. Vol. 13–14]. New York Superior Court reports, v. 45–46. Albany, 1880–81. 2 v. 8°. [1]

es, Thomas. *See* **Johnston, H. P.**

es, Thomas G. Reports, 1878–79. *See* **Alabama.** *Supreme Court.* Reports, v. 62.

es, *Sir* William. Les reports de divers special cases cy bien in le Court de Banck le Roy, come le Common-Banck in Angleterre, [1620–41]. Lond., 1675. f°. [1]

With MS. notes.

es family. *See* **Trask, W. B.**

Joseph, *Chief of the Nez Perces.* *See* **Howard, O. O.**

Journal de l'instruction publique. 23e vol. 1879. Quebec, [187

Journal of education. Vol. 11-12. Bost., 1880. 2 v. f°. [1]

Journal of education for the province of Quebec. 23d vol. 18
[1879]. 4°. [1]

Journal of prison discipline and philanthropy. 1879-80. New s
19. Phila., 1879-80. 8°. [3]

Published by the Philadelphia Society for Alleviating the Miseries of Publi

Jury. *See* **Massachusetts.** *General Court.*

Justices of the peace. *See* **Caldecott, T.**

Kane, Elisha Kent. Arctic explorations: the 2d Grinnell expedit
of Sir J. Franklin, 1853-55. Illus. Phila., 1856. 2 v. 8°. [1]

Kansas. *Department of Public Instruction.* 10th annual report, 1
1870. 8°. [2]

— *Legislature.* Compiled laws, 1879. By C. F. W. Dassler. St
l. 8°. 1154 p. [1]

— - Laws for the regulation and support of common schools. By
State Superintendent of Public Instruction. Topeka, 1881. 8

— - Session laws and memorials, 18th regular session, 1879; 1881,
being the 2d biennial session. Topeka, 1879-81. 2 v. 8°. [2]

— *State Board of Agriculture.* 2d biennial report, 1879-80. Top
Portrait and maps. [2]

— *State Superintendent of Public Instruction.* [2d biennial] re
Topeka, 1881. 8°. [2]

An appendix contains school house plans and specifications.

— *Supreme Court.* Reports of cases. A. M. F. Randolph, repor
1880-81. Topeka, 1881. 8°. [2]

— *See* **Edmands, J. W.**; — **Everett, E.**

Kansas City. *Board of Education.* 6th, 9th-10th annual report
schools, 1876-7, 79-81. Kansas City, [1877]-81. 8°. [2]

Kansas State Historical Society. Transactions. 1st-2d bie
with a statement of the collections of the Society, 1875-
Topeka, 1881. 2 v. in 1. 8°. [3]

Kaufmann, M. Utopias; or, Schemes of social improvemen
Thomas More to Karl Marx. Lond., 1879. sm. 8°. [1]

Kay, David. Austria-Hungary. With maps and illus. Lon
(**Pulling,** F. S., *ed.* Foreign colonies.) [1]

Keating, J. M. A history of the yellow fever. The epidemi
Memphis, Tenn. Memphis, 1879. l. 8°. [3]

Keene, *N.H.* *Superintending School Committee, Board of Educa*
ports, 1857-77/8, 79/80-80/81. Keene, 1857-81. 8°. [2]

Kelley, William Darrah. The financial problem! Speech in
Representatives, Feb 19, 1876. Wash., 1876. 8°. 17 p. [1]

— The internal taxes, shall they be perpetuated or abolished?
House of Representatives, May 1, 1872. [Wash., 1872.] 8°.

— Letter to the citizens of the 4th congressional district of
Nov. 2, 1875. Phila., 1875. 8°. 32 p. [1]

— Merchantable commodities cannot be standards of value.
House of Representatives, March 16, 1876. Wash., 1876. 8°.

— Money and the national finances. An address, Philadelphia,
Phila., 1876. 8°. 48 p. [1]

— The present situation and how it should be met. A tempo
remedy. Phila., 1874. 8°. 11 p. [1]

— The proposed reciprocity treaty: an address, Philadelphia,
Phila , 1874. 8°. 35 p. [1]

llogg, Ensign H. The Johnson protocol and international good neighborhood: two letters to Gen. Grant. By "Pontoosuc," [*pseud.*]. Pittsfield, 1869. 8°. 24 p. [3]

nan, Thomas S. North Carolina reports, 1880–81. *See* **North Carolina.** *Supreme Court.* Reports, v. 83–84.

nny, Courtney Stanhope. True principles of legislation with regard to property given for charitable or other public uses. Lond., 1880. 8°. [1]

Yorke prize essay.

ntucky. *Court of Appeals.* *See* **Duvall,** A. Reports, 1865–66, v. 2.

eneral Assembly. An act to establish a uniform system of common schools for colored children. *n.p.*, [1874]. 8°. 8 p. [2]

— Common school laws and manual. [Frankfort, 1878.] 16° 56 p. [2]

— A digest of the statute laws of a public and permanent nature, passed since 1834. By P. S. Loughborough. Frankfort, 1842. 8°. 693 p. [1]

uperintendent of Public Instruction. Annual report, 1874–77. Frankfort, 1874–77. 4 v. 8°. [2]

The report for 1876 has an appendix containing the proceedings of the State Teachers' Association.

ee **Henderson,** H. A. M.

rr, W. C. The state of North Carolina. *n.p.*, [187-]. 8°. 32 p. [3, *Author.*]

ttell, Thomas Prentice. *See* **Notes,** *etc.*

dder, Frederic. Discovery of North America by John Cabot in 1497. *n.t.p.* [1878.] 8°. 8 p. Portrait and maps. [3, *Author.*]

Pages 381–388 of the New England historical and genealogical register, 1878.

lgore, *Mrs.* Carrie Burnham. Address before the Legislature of Pennsylvania, Mar. 23, 1881, [on the admission of women to the bar]. Phila., 1881. 8°. 31 p. [3, *Author.*]

mball Union Academy, *Plainfield, N.H.* General catalogue and a brief history of [the] Academy. Also a biographical sketch of Daniel Kimball, [by H. A. Hazen]. 1815–80. Claremont, N.H., 1880. 8°. [1]

ndergartens. *See* **Lyschinska,** M. J.; — **Wiebe,** E.

ng, Henry Clay. The Tennessee digest of the judicial decisions of Tennessee, 1796–1880. 2d ed. Chicago, 1880. 3 v. 8°. [1]

ng, James W. The war-ships and navies of the world. With illus. Bost., 1880. 8°. xvi, 623 p. [1]

ng, Moses. The Back Bay district and the Vendôme, Boston. Bost., 1880. sq. 8°. 31 p. [3, *J. W. Wolcott, Boston.*]

nglake, Alexander William. The invasion of the Crimea, to the death of Lord Raglan. Vol 6. The winter troubles. Edin., 1880. 8°. Map. [1]

ngsley, Charles. Sanitary and social lectures and essays. [Vol. 18 of his Works.] Lond., 1880. 16°. [1]

Contents.

Woman's work in a country parish. — The science of health. — The two breaths. — Thrift. — Nausicaa in London: or, The lower education of women. — The air-mothers. — The tree of knowledge. — Great cities and their influence for good and evil. — Heroism. — The massacre of the innocents. — "A mad world, my masters."

nnear, John Boyd. Principles of property in land. Lond., 1880. sm. 8°. [1]

rkbride, Thomas S. On the construction, organization, and general arrangements of hospitals for the insane. 2d ed., with additions. Phila., 1880. 8°. Illus. [1]

napp, Jerome William. Reports of cases before the judicial committee and the Lords of [the] Privy Council, 1829–36. Lond., 1831–[36]. 3 v. 8°. [1]

Vol. 3, completed by E. F. Moore. The title-pages vary.

nickerbocker, *pseud.* Resumption of specie payment. Letters to the New-York daily times, Sept.-Oct., 1873. N.Y., 1873. 8°. 60 p. [1]

Knox, Thomas W. The underground world: a mirror of life belo
face. Interesting sketches of mines and mining in all parts of
Illus. Hartford, 1880. 8°. 1016 p. [1]

Knox family. *See* **Rogers,** C.

Knox manuscripts. *See* **Slafter, E. F.**

Kolb, G. Fr., *Freiherr* von. The condition of nations, social an
With comparative tables of universal statistics. Tr., ed. and
1880, by Mrs. [E.] Brewer; with notes, *etc.*, by E. W. Street
[1880]. l. 8°. 985 p. [1]

L., Y. N. The Lake of the Red Cedars; or, Will it live? A re
first thirty years of Baptist labors in the county of Lake, India
Point, Ind., 1880. 12°. Map. [1]

A memorial of Judge Hervey Ball, and others, of Cedar Lake.

Labor *and* **Laboring classes.** *See* **Great Britain.** *Secretaries o*
— **Massachusetts**; — **Thompson,** R. E.

Ladd, Luther Crawford. *See* **Andrew,** J. A.

Lamb, *Mrs.* Martha J. History of the city of New York. Illu
N.Y., [*cop.* 1880]. l. 8°. [1]

Lamson, Alvan. A history of the First Church and Parish in
three discourses, on the completion, Nov. 18, 1838, of the 2d ce
the gathering of said church. Dedham, 1839. 8°. [2]

— Impressions of men and things abroad: a sermon preached a
Sept. 11, 1853, after an absence of some months in Europe.
8°. 20 p. [4]

— A sermon preached Oct. 31, 1858, the Sunday after the 40th ann
his ordination. Bost., 1859 8°. 63 p. [3]

Lancashire, *Eng.* *See* **Record Society.**

Lancaster, *Mass.* Receipts and expenditures of the town for th
ing March 1, 1851, 54, 57. Clinton, 1851-57. 8°. [3]

— *Town Library.* 18th annual report, 1880–81. Clinton, 1881. 8°.

— **Memorial Hall.** *See* **Thayer,** C. T.

Land. *See* **Brodrick,** G. C.; — **George,** H.; — **Great Britai**
Office; — **Howard,** J.; — **Kinnear,** J. B.; — **Lefevre,** G. S.;
A. G.; — **Smith,** F. W.

Landor, Walter Savage. *See* **Colvin,** S.

Langley, Edward. On the silver question. Salford, [Eng.]. 8°.

From the Transactions of the Manchester Statistical Society.

Lapland. *See* **Vincent,** F., *Jr.*

Larned, J. N. Talks about labor, and concerning the evolutio
between the laborers and the capitalists. N.Y., 1876. 12°. [1]

Lathrop, John. Massachusetts reports, 128–129. *See* **Mass**
Supreme Judicial Court.

Lathrop, Joseph. *See* **Sprague,** W. B.

Laval University, *Montreal.* Annuaire de l'Université Laval p
académique, 1880/81. Num. 24. Québec, 1880. 8°. [3]

— Questions sur la succursale de l'Université Laval. 2e éd. Q
8°. 44 p. [3]

Law. *See* **Abbott,** B. V.; — **American law review**; — **Holmes,**
— **Law** magazine and review; — **Reporter.**

Law magazine and review. 1879-80. 4th series, v. 5. Lond., 1880

Law of nature and nations. *See* **Hall,** W. E.

Law reports. Appeal cases before the House of Lords (English
Scotch) and the Judicial Committee of [the] Privy Council.
C. Clark, G. J. Wheeler, H. Cowell. Vol. 5. 1879-80. Lon
[1]

w reports, *continued.*

Chancery. [Division 1.] Ed. by G. W. Hemming. Vol. 13-15 1879-80. Lond., 1880. 3 v. 8°. [1]

Common Pleas division. Reported by J. Scott and J. Rose; and in the Court of Appeal by H. Holroyd and J. E. Hall. Ed. by J. R. Bulwer. Vol. 5. 1879-80. Lond., 1880. 8°. [1]

Exchequer division. Reported by J. M. Moorsom and A. Mortimer; and in the Court of Appeal by H. Holroyd and J. E. Hall. Ed. by J. R. Bulwer. Vol. 5. 1879-80. Lond., 1880. 8°. [1]

Probate division. In the Courts of Probate and Divorce, reported by R. A. Pritchard; in the Admiralty and Ecclesiastical Courts by G. Bruce; in the Privy Council by H. Cowell; and in the Court of Appeal by M. Ware and H. C. Jones. Ed. by J. R. Bulwer. Vol. 5. 1879-80. Lond., 1880. 8°. [1]

Public general statutes, 1880: with a list of the local and private acts, *etc.* Vol. 15-16. Lond., 1880. 2 v. in 1 8°. [1]

Queen's Bench division. Reported by A. P. Stone and E. Lumley; in the Court for Crown Cases Reserved, by C. Dodd; and in the Court of Appeal by H. Holroyd and J. E. Hall. Ed. by J. R. Bulwer. Vol. 5. 1879-80. Lond., 1880. 8°. [1]

wes, John Bennet. Memoranda of the origin, plan, and results of the field and other experiments on the farm and in the laboratory of Lawes, at Rothamsted, Herts. [Lond., 1880.] 4°. 25 p. [3]

and **Gilbert,** J. H. Agricultural, botanical, and chemical results of experiments on the mixed herbage of permanent meadow. Part 1. [Lond., 1880.] 4°. [3]

From the Philosophical transactions of the Royal Society. Part 1. 1880.

— Our climate and our wheat-crops. Lond., 1880. 8°. 40 p. [3]

wrence, William Beach. *See* **Hart,** C. H.

wrence, *Mass. Free Public Library.* 9th annual report, 1880. Lawrence, 1881. 8°. [3]

Eliot Congregational Church. *See* **Barrows,** J. H.

wrence Academy, *Groton, Mass.* Catalogue of the officers and students, 1842/3; Catalogue of the trustees, teachers, and students, 1845-46; Catalogue of the trustees, instructors, and students, 1847, 49-68, 71; 79th-87th year, 1872-81. Groton, Lowell, Andover, *etc.*, 1843-80. 16° and 8°. [3, *Samuel A. Green, M.D., Boston.*]

Called "Groton Academy," previous to 1846.

Catalogue of the officers and students from its incorporation. Groton, 1848. 8°. [3, *S. A. Green.*]

Memorial soliciting aid in rebuilding Lawrence Academy. Groton, [1868]. 8°. 6 p. [3, *S. A. Green.*]

[Programmes and orders of exercises at the annual examinations and exhibitions, *etc.*, 1855-62, 64-65, 67, 74, 79-80. Groton Junction, 1855-80.] 8°. [3, *S. A. Green.*]

awrence directory. Directory of the city of Lawrence, and the adjoining towns of Methuen and North Andover, 1860-61, by C. A. Dockham. Lawrence, 1860. 8°. [3, *Augustus Russ, Boston.*]

Same. 1879, 81. No. 13-14. By Sampson, Davenport, & Co. Lawrence, 1879-81. 2 v. 8°. Map. [1]

awyers. *See* **Arnold,** I. N.; — **Hubbell & Craven**; — **Williams,** C. L.

ebanon, *Conn. See* **Hine,** O. D.

ee, Joseph. A half-century discourse, [at Royalston], Oct. 19, 1818; being the 50th anniversary of his ordination. With an appendix. Worcester, 1819. 8°. 27 p. [2]

ee, *Mass. See* **Hyde,** C. M., *and* A.

ees, Frederic Richard, *and* **Burns,** Dawson. The temperance Bible-commentary. 2d ed. Lond., 1868. 8°. [1]

Lefevre, G. Shaw. Freedom of land. Lond., 1880. 8°. (**Natio**
Federation. Practical politics, no. 3.)

Lefferts family. *See* **Bergen,** T. G.

Leicester, *Mass.* Annual report of the selectmen, *etc.*, March 3,
1864. Worcester, [1851-64]. 8°. [2]

— Celebration of the centennial anniversary of American indepe
4, 1876; [embracing the oration by J. E. Russell]. Worces
36 p. [1]

— Valuation, state, county, town, highway and school district
Worcester, [1858]. 8°. 48 p. [2]

Leicester Academy. *See* **Washburn, E.**

Leominster pocket directory for 1880-81. Hawkes & Tenny
Leominster, 1880. 24°. 56 p. [1]

Leonard, *Mrs.* Clara T. The best way to deal with children
homes of vice or neglect. Life in a family *vs.* large institut
1881. 8°. 15 p. [3]

Address to the Associated Charities of Boston, Feb. 14, 1881.

Lestoile, Pierre. Greece and the Times. Reprinted from Mine
1880. Rome, 1880. 8°. 20 p. [3]

Levi, Leone. The history of British commerce and of the econo
of the British nation, 1763-1878. 2d ed. Lond., 1880. 8°. [1]

Lewis, Francis A., *Jr.* Law relating to stocks, bonds, and oth
in the United States. Phila., 1881. 8°. [1]

Lewis, Winslow. Addresses. *See* **New England Historic, G**
Society.

— Valedictory address on retiring from the office of president
England Historic-Genealogical Society, Feb. 7, 1866. Bost , 1
[1]

Lewiston, *Me.* *School Committee and Superintendent of Scho*
reports, 1874-77, 79-80. Lewiston, 1875-80. 8°. [3]

Lexington, *Mass.* Copy of the valuation of real and personal
54. Bost., 1851-[54]. 16° and 8°. [3, *Hon. Chas. Hudson, Lexi*

— Report of the auditor of accounts, 1851/2-54/5, [56]/7-57/8. B
8°. [3, *Hon. Chas. Hudson, Lexington.*]

Reports for 1856/7 and 1857/8 embrace lists of tax-payers, *etc.*
The title-pages vary.

— *See* **Everett, E.**

Liberia. *See* **Samson,** G. W.; — **Stetson,** G. R.

Liberty. *See* **Constitutional liberty.**

Libraries. *See* **De Peyster,** F.; — **Green,** S. S.; — **Librar**
United States. *Bureau of Education.*

Library journal. Vol. 5. N.Y., 1880 4° [1]

Lieber, Francis. Miscellaneous writings. Phila., 1881 [188
Portrait. [1]

Contents.

Vol. 1. *Reminiscences, addresses, and essays:* Introduction; — Life, chara
ings of Lieber, by M. R. Thayer; — Reminiscences of Niebuhr; — Reminiscen
of Waterloo; — Inaugural address, South Carolina College, Dec. 7, 1835: — O
opment of the first constituents of civilization; — Character of the gentlem
of continued self-education; address, South Carolina College, Dec. 1, 1851
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and modern teacher of politics; — Alexander von Humboldt; — Address wher
boldt was placed in the Central Park, N.Y., 1869; — Washington and Na
sounds of Laura Bridgman; — Study of foreign languages.

2. *Contributions to political science:* Lieber's service to political science a
law, by J. C. Bluntschli; — The rise of our constitution and its national feat
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alism; — Instructions for the government of armies of the United States in th
rilla parties considered with reference to the laws and usages of war; — Th
prisoners of war; — Some points in international law: The plebiscitum; The
sale of arms; International arbitration; International copyright; — Anglic
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Index.

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-saving. *See* **Mason,** T. B. M.; — **United States.** *Life-Saving Service;* — *Ordnance Department.*

ıthouses. *See* **Hill,** H. A.; — **United States.** *Light-House Board.*

e, Adam. Canada: its growth and prospects. Two lectures before the Iechanics' Institute, Toronto, 13th and 27th Feb., 1852. 2d ed. Toronto, 852. 12°. 47 p. [3]

oln, Abraham, *Pres. of the U.S.* *See* **Pennsylvania Historical Society.**

oln, David Francis. School and industrial hygiene. Phila., 1880. 18°. American health primers.) [1]

oln, *R I.* Historical sketch of Lincoln, compiled by W. A. Greene. Central Falls, R. I., 1876. 8°. 26 p. [1]

ıor-laws. *See* **Bacon,** L. W.; — **Clubb, H. S.**; — **Ontario.**

rary and Historical Society of Quebec. Transactions, 1873-75. New series. Part 2. Quebec, 1875. 8°. Maps and illus. [3]

rary and Philosophical Society of Liverpool. Proceedings, 68th-9th session, 1878-80. No. 33-34. Lond., 1879-80. 2 v. 8°. [3]

lehale, Frederic Henry. Genealogy of the Littlehale family in America, 633-1880. Dallas, Texas, 1880. 16°. 10 p. [3, *Author.*]

lehale family. *See* **Littlehale,** F. H.

leton, Edward, *Lord.* Les reports en le Courts del Common Banck & Exchequer en le 2-7 ans del reign de Roy Charles I., [1626-32]. Lond., 1683. f°. [1]

With MS. notes.

leton, *Mass.* Copy of the valuation and taxes, 1860; Assessors' report of the valuation and taxes, 1870, 80. Bost., 1860-80. 8°. [3, *Herbert J. Harwood, Littleton.*]

eport of the selectmen and overseers of the poor, for the year ending Feb. 28, 1865. Concord, [1865]. Broadside. [2]

erpool, *Eng.* *See* **Taylor,** J. S.

ingston, Robert R. *See* **De Peyster,** F.

ingston County (*N.Y.*) **Historical Society.** 2d-5th annual meeting, 1878-81. Dansville, 1878-81. 8°. [3, *Norman Seymour, Mt. Morris, N.Y.*]

onstitution, by-laws and certificate of incorporation. Mt. Morris, N.Y., 1877. 8°. 14 p. [3, *N. Seymour, Mt. Morris, N.Y.*]

The 1st annual meeting.

ingstone, David. *See* **Blaikie,** W. G.

ke, J. S. Shores of Saco Bay. A historical guide to Biddeford Pool, Old Orchard Beach, Pine Point, Prout's Neck. Bost., 1880. 16°. Map and illus. [1]

ke, John. *See* **Fowler,** T.

usts. *See* **United States.** *Entomological Commission.*

ige, Henry Cabot. A short history of the English colonies in America. N.Y., 1881. 8°. Map. [1]

ft, Capel. Reports of cases in the Court of King's Bench, [1772-74]. With some select cases in the Court of Chancery and of the Common Pleas. Dublin, 1790. 8°. [1]

With MS. notes.

ıdon quarterly review. Vol. 149-150. N.Y., 1880. 2 v. 8°. [1]

ıdonderry, *Ireland.* **Chamber of Commerce.** Translation of the charter granted by Charles II. to the mayor and community and citizens of London-Derry. Published by the Chamber of Commerce, London-Derry. Lond., 1793. 8°. [3]

g, James. Eastern proverbs and emblems illustrating old truths. Bost., 1881. sm. 8°. [1]

Long, John Davis. Memorial day. Oration by Gov. J. D. Long: ode by T. W. Higginson, before the Grand Army posts of Suffolk County, Boston, May 30, 1881. Bost., 1881. 8°. 28 p. [1]

Longfellow, Henry Wadsworth. Poetical works. Household ed. Bost., 1881 [1880]. 16°. [1]

Longitudes. *See* **United States.** *Bureau of Navigation.*

Longman, Frederick William. Frederick the Great and the seven years' war. N.Y., [1881]. 16°. Maps. (**Morris,** E. E., *and others.* Epochs of modern history.) [1]

Loring, Amasa. History of Piscataquis County, Maine, to 1880. Portland, 1880. 8°. Map. [1]

Loring, George Bailey. Massachusetts. Speech in the House of Representatives [of the United States] Jan. 20, 1881. Wash., 1881. 8°. 20 p. [3]

Loughborough, Preston S. Digest of the statute laws of Kentucky, [1842]. *See* **Kentucky.**

Louisiana. *Board of Health.* Annual report, 1880. New Orleans, 1881. 8°. [2]

— — Report, 1880. Extracts containing report of Joseph Jones, president, with official correspondence, *etc.* New Orleans, [1880]. 8°. [2]

— *General Assembly.* An abstract of the school laws. New Orleans, 1865. 8°. 21 p. [2]

— — Digest of the laws of Louisiana now in force, for the organization, support and direction of free public schools; with the laws establishing and regulating the State University and Agricultural and Mechanical College. By R. M. Lusher. New Orleans, 1877. 8°. 80 p. [2]

— — Public education, Louisiana. Acts of the General Assembly, extra session, 1877. R. M. Lusher, state superintendent. New Orleans, 1877. 8°. 16 p. [2]

— *State Superintendent of Public Education.* Annual report, 1870-72, 74-75. New Orleans, 1871-76. 5 v. 8°. [2]

The reports for 1859, 65, 66, 69 and 73 are contained in the Documents of the Legislature for 1860, 66, 67, 70 and 74.

— *Supreme Court.* Reports of cases. Vol. 32. 1880. H. Denis, reporter. New Orleans, 1881. 8°. [2]

Contains reports from the organization of the Court under the constitution of 1879.

— *See* **Anthony,** H. B.; — **Hennepin,** L.

Louisiana Educational Convention. Proceedings, May 23-25, 1872. E. Bentley, compiler. New Orleans, 1872. 8°. [3]

Louisiana Historical Society. Charter and constitution. New Orleans, 1877. 24°. 8 p. [3]

Louisiana State Agricultural and Mechanical College. 2d annual report of the board of control, 1876. New Orleans, 1876. 8°. [3]

Afterwards merged in the Louisiana State University.

Louisiana State University and Agricultural and Mechanical College. Report of the board of supervisors, [1866], 68, 77. New Orleans, 1867-78. 8°. [3]

Called "Louisiana State Seminary of Learning," 1866, 68.
The report for 1871 is contained in the annual report of the Superintendent of Public Education of Louisiana for 1871.
See also **Louisiana State Agricultural and Mechanical College.**

Lovejoy, Elijah Parish. *See* **Tanner,** H.

Lovett, William, *and* **Collins,** John. Chartism; a new organization embracing a plan for the education and improvement of the people, politically and socially. Lond., 1840. 12°. (**Pm.,** v. 119.) [1]

Low, David W. Address before the Essex Agricultural Society, at their 58th annual exhibition, Lynn, Sept. 28-29, 1880. Salem, 1880. 8°. 23 p. [3, *Author.*]

The title on the cover is "The pioneer industries of Essex County: planting and fishing."

Low, Sampson & Co. English catalogue of books for 1880. Lond., 1881. 8°. [3]

Lowell, James Russell. Poetical works. Household ed. Bost., 1881 [1880]. 16°. [1]

Lowell, John, *Jr.* *See* **Everett, E.**

Lowell, John Amory. Reply to a pamphlet recently circulated by Edward Brooks. Bost., 1848. 8°. [3]

— Review of Mr. Hooper's pamphlet on specie reserves. Bost, 1860. 8°. 22 p. [1]

Lowell, Robert Traill Spence. The Papal Church persecutes to death, *etc.* Five letters occasioned by published assertions of a Roman Catholic priest. Newark, N J., 1853. 8°. 22 p. (**Pm.,** v. 118.) [1]

Lowell, *Mass.* Auditor's estimate of appropriations, for 1840. [Lowell, 1840.] 8°. [2]

— Expenses of the town for year ending March 1, 1836; 1st-6th, 13th-14th, 16th-17th annual report of receipts and expenditures, Feb. 1837-Dec. 1841, 48-49, 51-52. Lowell, 1837-53. 8°. [2]

The titles, 1840-52, read "Auditor's annual report," *etc.*

— [Miscellaneous city documents. Lowell, 1838-60.] 8°. [2]

Namely.

Resolutions providing for the salaries of city officers for 1838. Lowell, 1838. — Papers relating to the building of houses for the high and grammar schools. 1839. Lowell, 1839. — Address of E. Huntington, Mayor. Apr. 5, 1841. Lowell, 1841. — Report of the joint special committee on the effects of lead pipes upon well-water. Lowell, 1842. — Treasurer's report of debts due to the city, Feb 6, 1843. [Lowell, 1843.] — Address of J. Cook, Mayor, Jan. 3, 1859. Lowell, 1859. — Report upon a petition for the enforcement of the act relating to the illegal sale of intoxicating liquors. Lowell, 1860.

— Statistics of Lowell manufactures, Jan. 1, 1835, 1839. [Lowell, 1835-39.] Broadsides. [2]

— *City Council.* Proceedings at the semi-centennial celebration of the incorporation of the town, March 1, 1876. Lowell, 1876. 8°. [1]

— - Rules and orders, and list of the government and officers, 1852. Lowell, 1852. 8°. [2]

— *City Library.* Annual report, 1879-80. Lowell, 1880-81. 8°. [3]

— **Old Residents' Historical Association.** Contributions. Vol. 2, no. 1. Lowell, 1880. 8°. [3]

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Vol. **2.** **Gilman, A.** Sketch of the life of Kirk Boott. — **Russell, J. S.** Reminiscences of the Lowell High School — **Gilman, A.** Capt. G. V. Fox in the war of the rebellion. — **Cowley, C.** Cruise of the monitor Lehigh. — **A., C. L.** Sketch of the life of Edward St. Loe Livermore. — **Hovey, C.** The Wyman farm and its owner. — **Russell, J. S.** Biography of John Dummer.

Lowell directory, [1861]. By Adams, Sampson, & Co. Lowell, 1861. 8°. [3, *Augustus Russ, Boston.*]

— *Same.* 1880-81. No. 30-31. By Sampson, Davenport & Co. Lowell, 1879-81. 2 v. 8°. Maps. [1]

Loyalists. *See* **Ryerson, E.**

Lucas, Samuel. Charters of the old English colonies in America. With introduction and notes. Lond., 1850. 8°. [1]

Published for the Society for the Reform of Colonial Government.

Lucy, Henry W. A popular handbook of parliamentary procedure. Lond., 1880. 16°. viii, 74 p. [1]

Ludewig, Hermann E. The literature of American local history; a bibliographical essay. N.Y., 1846. 8°. [1]

Lunenburg, *Mass.* Copy of the valuation and taxes, 1855, 57-58, with the expenses of the town, 1856, 58-59. Fitchburg, 1856-59. 8°. [2, 3, *Flint H. Parker, Lunenberg.*]

Lutheranism. *See* **Merle d'Aubigné, J. H.**

Luzerne County, *Pa.* *See* **Hoyt, H. M.**

Lyle, David A. Report on foreign life-saving apparatus. *See* **United States.** *Ordnance Department.*

Lymm, *Eng.* *See* **Rylands,** J. P.

Lynn, *Mass.* *Mayor.* Inaugural address, 1850; Inaugural addr
with the list of city officers, the new ordinances, [1851-52], the
cian's report, [1852-59], and the [1st-9th] report of the co
accounts. Lynn, 1850-59. 8°. [3, *Hon. E. S. Davis, Lynn.*]

— *Public Library.* 18th annual report, 1880. Lynn, 1881. 8°. [3]

— *See* **Hopkins,** G. M.; — **Johnson,** D. N.; — **Newhall,** J. R.

— **Boston Street M. E. Church.** An account of the commemor
25th anniversary, May 20, 1878. Lynn, 1880. 16°. 40 p. [3]

Lynn directory, with an almanac for 1860. No. 7. By Adams,
Co. Lynn, [*cop.* 1859]. 16°. Map. [3, *Augustus Russ, Boston.*]

— *Same.* 1880. No. 17. By Sampson, Davenport, & Co. Lynn
Map. [1]

Lynnfield, *Mass.* [Financial reports for the year ending] March
34-35, 39, 41, 43, 45-47, 49-62. Salem, Bost., [1825]-62. Broad
[3, *J. Morton Danforth, Lynnfield.*]

Variously called, "Town accounts," "Annual report of receipts and
"Annual report of accounts," "Expenses," and "Financial report."

Lyschinska, Mary J. The kindergarten principle; its educationa
chief applications. Lond., 1880. sq. 8°. Illus. [1]

MacArthur, Arthur. Reports of cases in the Supreme Court of
of Columbia, 1877-79. Wash., 1881. 8°. [1]

McCalmont, F. H. The parliamentary poll book of all electio
passing of the first reform act in 1832 to July, 1880. With an
list of candidates. 2d ed. Lond., 1880. 24°. [1]

McCamant, Thomas. Charter and laws of Pennsylvania, 16
Pennsylvania. *Secretary of State.*

McClellan, George Brinton. *See* **Military Historical Society**
chusetts.

M'Clintock, John, *and* **Strong,** James. Cyclopædia of Biblical,
and ecclesiastical literature. Vol. 10. Su—Z. N.Y., 1881.
[1]

McClure, Alexander K., *editor* (?) The annals of the war, writt
ing participants North and South. Originally published in
delphia Weekly Times. Phila., 1879. 8°. iv, ii, 800 p. [1]

McCord, Thomas. The civil code of Lower Canada, [1880]. *See*

M'Crary, George W. Cases argued and determined in the Circu
the United States for the 8th judicial circuit, [1880]. Vol.
1881. 8°. [1]

McDonald, Frank Virgil. Contributions to the early history of
Donald and family, settlers in 1689, on Red Clay Creek, Delaw
biographical sketches. San Francisco, 1879. l. 8°. 64, (1)
[3, *Author.*]

— Genealogy of the MacDonald family. Edition B. Comprisin
obtained up to Feb. 1876. [New Haven, 1876?] obl. 8°. [3, *Au*

— Inquiries relating to the ancestors and descendants of Job
Cumberland, R.I., and Greenwich, N.Y. Camb., 1881. l. 8°.
traits. [3, *Author.*]

— Supplement no. 1 to edition B of the MacDonald genealogy.
records of the descendants of Jesse Peter of Kentucky.
l. 8°. 72 p. Portraits. [3, *Author.*]

McDonald, Joseph E. Speech in the Senate of the United Stat
10, 1880, [on the bill for the relief of Fitz John Porter]. Wa
46 p. [3, *Fitz John Porter, Morristown, N.J.*]

McDonald family. *See* **McDonald, F. V.**

McDougall, *Mrs.* Frances H. [Whipple]. *See* **Rider, S. S.**

ackintosh, James. Speech in the House of Representatives [of Massachusetts], March 2, 1881, on the division of Needham *h t p.* [Bost., 1881.] 8°. 7p. [4]

acLeod, Henry Dunning. The elements of economics. Vol. 1. Lond., 1881. sm. 8°. [1]

cMahon, Martin T. Gen. John Sedgwick. An address before the Vermont Officers' Reunion Society, Nov. 11, 1880. Rutland, 1880. 8°. 33 p. [3]

cPherson, Edward. The political history of the United States during the great rebellion. [1861–65]. 3d ed. Wash., 1876. 8°. viii, 653 p. [1]

The political history of the United States during the period of reconstruction, 1865-70. 3d ed. Wash., 1880. 8°. 9, 648, p. [1]

A reprint of his Political manuals, 1866–70, with additions.

Remarks before the committee on banking and currency, House of Representatives, Feb. 6, 1878. Wash., 1878. 8°. 19 p. [3]

adalin, *N.Y. See* **De Peyster,** J. W.

adison, *Wis. Board of Education.* Annual reports, 1864-65, 80. Madison, 1866–81. 8°. [3]

agazine of American history. Vol. 4–6. N.Y., 1880-81. 3 v. sm. 4°. Illus. [1]

agellan, Strait of. *See* **Cunningham,** R. O.

aine. *Board of Agriculture.* 24th annual report of the secretary, 1880. Augusta, 1880. 8°. [2]

— *Commissioners on the Assumption of the Municipal War Debts.* Report. Augusta, 1868. 8°. [3]

— *Legislature.* Acts and resolves, 60th Legislature, 1881. Augusta, 1881. 8°. [2]

— — Documents printed by order of the Legislature, 1880. Augusta, 1880. 8°. [2]

— — Journal of the House of Representatives, 1857, 65–67, 79–80, 36th, 44th–46th, 58th-59th Legislature. Augusta, 1857-80. 6 v. 8°. [2]

— — Journal of the Senate, 1854, 56, 58, 60–61, 63–67, 79–80, 33d, 35th, 37th, 39th–40th, 42d–46th, 58–59th Legislature. Augusta, 1854–80. 12 v. 8°. [2]

— — Public documents, 1880. Augusta, 1880. 3 v. 8°. [2]

— — Register of the House of Representatives, 1881, containing the names of the executive department, Senate, and committees of both houses. Augusta, 1881. 8°. 24 p. [2]

— — Report of the joint select committee on the defalcation of Benj. D. Peck, late Treasurer of Maine. Augusta, 1860. 8°. 66, (2) p. [3]

— *Secretary of State.* Census of the several cities, towns and plantations, in Maine. Augusta, 1881. 8°. 10, (1) p. [2]

— — Register of the executive department of the State of Maine, with rules for the government thereof, 1881-2. Augusta, 1881. 8°. [2]

— *State Superintendent of Common Schools.* 27th annual report, 1880. Augusta, 1880. 8°. [2]

— *Supreme Judicial Court.* Reports of cases in law and equity, [1879–80]. By D. R. Hastings. Maine reports, v. 70. Portland, 1880. 8°. [2]

— — *Same.* [1879–80.] By J. W. Spaulding. Maine reports, v. 71. Portland, 1881. 8°. [2]

— *See* **Clubb,** H. S.; — **Dyer,** I. W.; — **Owen,** H.; — **Webb,** E. F.

aine business directory, 1873. Bost., 1873. 8°. [1]

alden. Greenough's directory of Malden, Medford, Melrose and Everett, for 1880. [No. 7.] Bost., 1880. 8°. [1]

alherbe, François. Souscription pour une médaille en l'honneur de Malherbe, proposée par P. A. Lair. *n.p., n.d.* 8°. 74 p. [3]

allery, Garrick. Introduction to the study of sign language among the North American Indians. *See* **Smithsonian Institution.** *Bureau of Ethnology.*

Malthus, Thomas Robert. Principles of political economy. Lond
vi, 601 p. [1]

Maltsters' National Association of the United States. Consti
by-laws, with the proceedings of the meeting, N.Y., Sept. 1, 1
1876. 8°. 52 p. [3, *H. H. Ruéter, Boston.*]

Manchester (*Mass.*) directory. *See* **Danvers.**

Manchester, *N.H. Board of Water Commissioners.* 1st annual re
reports of the chief engineer, *etc.* Manchester, 1873. 8°. [3]

— *Superintendent of Public Instruction and School Committee.* Repor
intending school committee, 1855-6; 10th-13th annual report,
19th-22d annual report of the school committee [and Board of E
1864-67; 23d, 28th-29th, 31st-32d, 34th annual report of the Sc
mittee, with the 14th, 20th-21st, 22d-23d, 25th annual report of
intendent of Public Instruction, 1869, 74-75, 77-78, 80. Manche
81. 8°. [2]

The 30th annual report of the school committee was not published. *See next*

— - Report of the public schools of Manchester, 1876. With a his
schools by W. Little. Manchester, 1877. 8°. [2]

This report takes the place of the 30th annual report of the school committ

Manchester, (*N.H.*) directory, and an almanac for 1858. Numbe
piled by Adams, Sampson & Co. Manchester, [*cop.* 1857]
Augustus Russ, Boston.]

Manchester, *Vt.* *See* **Munson,** L.

Manitoba. *See* **Fitzgibbon,** M.; — **Morris,** A.

Manning, Jacob Merrill. Christian missions and the social ideal
before the American Board of Commissioners for Foreign Mis
5, 1880. Bost., 1880. 8°. 18 p. [3]

Marble, Albert P. Development of character. Two classes. Ra
marking. Address to the public school teachers, Worcester,
1881. Worcester, 1881. 8°. 24 p. [3]

Marblehead, *Mass.* *See* **Hopkins,** G. M.; — **Roads,** S., *Jr.*

Marblehead directory. *See* **Danvers.**

Marden, George Augustus, *editor.* Government of the common
Massachusetts, [1880]. Historical, descriptive, and biographica
by various authors. With views and portraits. Bost., 1880. 2
Publishers.]

Marion, *Mass.* Annual report of the selectmen, overseers of the
school committee for the financial year ending March 18, 1864.
ford, 1864. 8°. [3]

Markham, Clements Robert. Peru. With illus. Lond., 1880. 1
(**Pulling,** S. F., *ed.* Foreign countries.) [1]

Marlboro directory. Goodnow's pocket directory of Marlboro,
Clinton, 1878. 24°. 64 p. [1]

Marlborough, *Mass.* *See* **Felton,** C.

Marriage *and* **Divorce.** *See* **Bishop,** J. P.; — **Van Ness,** E.

Marshall, Edward Chauncey. The ancestry of General Grant,
contemporaries. N.Y., 1869. 12°. [1]

Marshall, John. Atlas to Marshall's Life of Washington. I
8°. [1]

Marshfield, *Mass.* Statement of the selectmen of Marshfield, su
the General Court of Massachusetts. Bost., 1881. 8°. 12 p. [4]

Marston family. *See* **Watson,** J. L.

Martin, Augustus N. Reports, 1879-80. *See* **Indiana.** *Suprem
Judicature.* Reports, v. 68-70.

Martin, Frederick. The statesman's year-book, 1881. 18th annu
tion. Lond., 1881. 16°. [1]

rtin, Henry Joseph. Notices: genealogical and historical, of the Martin family, of New England. Bost., 1880. 8°. Portraits. [1]

rtin, W. A. P. The Chinese, their education, philosophy, and letters. N.Y., 1881. 12°. [1]

rtin, William B. An index to the Virginia reports, from Jefferson to 33rd Grattan. Richmond, 1881. 8°. (4), 688 p. [1]

rtin family. *See* **Martin, H. J.**

rtineau, Harriet. Illustrations of political economy. Lond., 1834 [1832–34]. In 9 v. 18°. [1]

Contents.

Vol. 1. Life in the wilds. — The hill and the valley. 2d ed. — Brooke and Brooke Farm.
2. Demerara. — Ella of Garveloch. — Weal and woe in Garveloch.
3. A Manchester strike. — Cousin Marshall. — Ireland.
4. Homes abroad. — For each and for all. — French wines and politics.
5. The charmed sea. — Berkeley the banker.
6. Messrs. Vanderput and Snoek. — The loom and the lugger.
7. Sowers not reapers. — Cinnamon and pearls. — A tale of the Tyne.
8. Briery Creek. — The three ages.
9. The Farrers of Budge-Row — The moral of many fables

ryland. *Court of Appeals.* Reports of cases. J. S. Stockett, state reporter. Vol. 51-53. 1878-80. Balt., 1880–81. 3 v. 8°. [2]

Department of Public Instruction. 2d annual report of the State Superintendent of Public Instruction and reports of the presidents of the Boards of County School Commissioners, 1867. Annapolis, 1868. 8°. [2]

See also State Board of Education.

- Report of the principal of the State Normal School, shewing the condition of the public schools of Maryland, with the reports of the County School Commissioners, 1868. Annapolis, 1869. 8°. [2]

This is the 3d report on the condition of the public schools. The 4th report, for 1869 is contained in the State documents of Maryland for 1870.
See also State Board of Education.

General Assembly. The laws of Maryland, with the charter, the bill of rights, *etc.* Revised by V. Maxcy. Vol. 2-3. Balt., 1811. 2 v. 8°. [1]

- Laws, Dec., 1821. Annapolis, 1821 [1822]. 8°. [1]

- The public school law of Maryland, 1872, as amended 1874. Balt., 1874. 8°. 29 p. [2]

Penitentiary. Annual report of the president and directors, 1880. Balt., 1880. 8°. [4]

State Board of Education. By-laws, rules and regulations. Balt., 1874. 8°. 18 p. [2]

- Report shewing the condition of the public schools of Maryland, 1874–75, 78. Annapolis, 1875-79. 3 v. 8°. [2]

The report for 1878 is the 13th annual report.
See also Department of Public Instruction.

ason, David H. How Western farmers are benefited by protection. Chicago, 1875. 8°. [1]

ason, George C. Newport illustrated, in a series of pen and pencil sketches. N.Y., [1854]. 12°. [1]

ason, James. The year-book of facts in science and the useful arts for 1879-80. Lond., 1880. 16°. [1]

ason, Theodorus B. M. Experiments on repeating rifles by a board of French naval officers. N.Y., 1879. 8°. 64 p. [3, *Author.*]

- Occasional papers. [Two lessons from the future, and The 100 ton gun. Annapolis, 187–.] 8°. 32 p. [3, *Author.*]

Nos. 4 and 7 of v. 2 of the Record of the United States Naval Institute.

- The preservation of life at sea. A paper read before the American Geographical Society, Feb. 27, 1879. N.Y., 1879. 8°. 38 p. [3, *Author.*]

ason, William Powell. Oration, July 4, 1827, before the supreme executive of the Commonwealth and the city council and inhabitants of Boston. Bost., 1827. 8°. 31 p. [3]

Massachusetts. *Adjutant-General.* Report, 1880. Bost., 1881.

— *Attorney-General.* Annual report, 1880. Bost., 1881. 8°. [4]

— *Auditor of Accounts.* Report, 1880. Bost., 1881. 8°. [4]

— *Board of Agriculture.* 28th annual report of the Secretary, with of the finances of the agricultural societies, 1880. Bost., 1881.

— - 1st state exhibition, 1857. Bost., 1857. 8°. [4]

— *Board of Commissioners of Savings Banks.* Annual report, in stracts of reports from the savings institutions in Massach Bost., 1881. 8°. [4]

— *Board of Education.* 44th annual report of the Board: with the report of the Secretary, 1879-80. Bost., 1881. 8°. [4]

— - International Exhibition. Circulars issued by the Massach mission, Department of Education and Science, 1876. Bost., [1

— - Report of examinations of schools in Norfolk County, Mass Walton. Bost., 1880. 8°. [4]

— - *Same.* [2d ed. With the Key.] Bost., 1880. 8°. [4]

— *Board of Railroad Commissioners.* 12th annual report, 1881, [wi reports, 1880]. Bost., 1881. 8°. [4]

— *Bureau of Statistics of Labor.* 12th annual report, 1881. Bost.,

— - History of the Bureau and of labor legislation in [Massachus 76 By C. F. Pidgin. Bost., 1876. 8°. [4]

— *Commissioners for the Erection of the New State Prison.* Final r Bost., 1879. 8°. 24 p. [4]

— *Commissioners on Inland Fisheries.* 15th annual report, 1880. 8°. [4]

— *Commissioners of Prisons.* 10th annual report. Bost., 1881. 8°.

Including 1. Reports relative to jails and houses of correction. 2, Annual State Prison. 3, Annual report of the Reformatory Prison for Women.

— *Commissioners on the Revision of the Statutes.* Report of the com 1881. Bost., 1881. 4 pt. 1. 8°. [4]

— - *Same.* Supplement. Legislation of 1881. Bost., [1881]. 1. 8°.

— *Constitution.* Constitution or form of government for the Com of Massachusetts. *n.p.*, *n.d.* 18°. 57 p. [4]

— - *See* **Bullock, A. H.**; — **Hale, E. E.**; — **New England Histor logical Society.**

— *Council.* Proceedings relative to the deposition of Andrew Oliv ing what passed in Council in consequence of the affair of March, 1770. Bost., 1770. f°. 33 p.

— *Deputy State Constable.* Report of H. K. Oliver, specially ap enforce the laws regulating the employment of children in ma and mechanical establishments. Bost., 1868. 8°. 95 p. [4]

— *General Court.* An act further regulating the storage, safe ke transportation of gunpowder in Boston, with the rules and reg the firewards, relative to the same. Bost., 1821. 8°. 8 p. [2]

— - An act to authorize the Boston Land Company to make certai ments in Boston Harbor, and for other purposes. Bost., 1877. 8

— - An act to establish the city of Fitchburg. [Bost., 1872.] 8°. 1

— - An act to establish the city of Roxbury. *n.t.p.* [Bost., 1846. [3]

— - An act to establish the city of Salem. Salem, [1836] 16°. 15

— - An act to establish the city of Worcester. *n.t.p.* [1848]. 8°.

— - Acts and resolves, 1881. Bost., 1881. 8°. [4]

— - The case of the provinces of Massachusetts-Bay and New-Yo ing the boundary line between the two provinces. Bost., 176 (1) p.

— - Ceremonials at the unveiling of the statue of Gov. John A. the State House, Feb. 14, 1871. Bost., 1871. 8°. 29 p. [4]

lassachusetts. *General Court, continued.*

- - A compilation of the laws in force relating to elections. Bost., 1880. 8°. 63 p [4]

- - Documents printed by order of the House of Representatives, 1881. Bost., 1881. 2 v. 8°. [4]

- - Documents printed by order of the Senate, 1881. Bost., 1881. 2 v. 8°. [4]

- - [Election sermons, 1676, 1881.] Bost., 1676-81. 16° and 8°. [4]

The preachers were **Hubbard, W.**, 1676; — **Furber, D. L.**, 1881.

- - The government of 1880-81. Biographical and political sketches of the members of the Executive Department, Council, Senate and House. [Bost., 1880-81.] 32°. [4]

- - Journal of the House of Representatives, May, 1734-April, 1735 Bost., 1734-[35]. f°. 187 p. [1]

- - Journal of the House of Representatives, 1880. Bost., 1880. 8°. [4]

- - Journal of the Senate, 1880. Bost., 1880. 8°. [4]

- - Manual for the use of the General Court, [1881]. By S. N. Gifford and G. A. Marden. Bost., 1881. 16°. [4]

- - [Orders of the day of the House of Representatives, for 1881. Bost., 1881.] 8°. [4]

- - [Orders of the day of the Senate for 1881. Bost., 1881.] 8°. [4]

- - Remonstrances against elevated railroads. 1881. Bost., [1881]. 8°. 40 p. [4]

- - Report of hearing before committee on harbors and public lands, on petition for an act authorizing the city of Boston to take and hold property for additional ferry facilities from East Boston. Bost., 1881. 8°. 56 p. [4]

- - Report of special committee on the State Workhouse at Bridgewater. [Bost., 1877.] 8°. 16 p. [4]

- - Report of the committee of valuation, [1793?] *n.t.p.* [1793.] 8°. 15 p. [3]

- - [Report of the joint special committee on the act concerning the rights and liberties of the people of Massachusetts. Bost., 1856.] 8°. 69 p. [4]

- - Report of the joint special committee on the petitions for and remonstrances against the removal from office of Joseph M. Day, Judge of Probate. Bost., 1881. 8°. [4]

- - [Report of the joint standing committee on trial by jury and the writ of habeas corpus. Bost., 1855.] 8°. 21 p. [4]

- - A statement showing the cost of surveying the Indian lands at Gay Head. Bost., 1879. 8°. 12 p. [3, *Hon. Jonas H. French, Boston.*]

— *Governor.* Address of J. D. Long to the Legislature, Jan. 6, 1881. Bost., 1881. 8°. 58 p. [4]

- - *See* **Felt, J. B.**

— *Harbor and Land Commissioners.* [2d] annual report, 1880. Bost., 1881. 8°. [4]

- - Arguments of the Commissioners and testimony given in regard to the South Boston Flats, before the committee on harbors and public lands. Bost., 1880. 8°. [4]

— *Insurance Commissioner.* 25th-26th annual report, 1880-81. Bost., 1880-81. 4 v. 8°. [4]

— *School for Idiotic and Feeble-Minded Youth.* 33d annual report, 1880. Bost., 1881. 8°. [4]

— *Secretary of State.* Abstract of the certificates of corporations organized during 1880. Bost., 1881. 8°. [4]

- - Aggregates of polls, property, taxes, etc., as assessed May 1, 1880. Bost., 1881. 8°. [4]

- - Public documents, 1879. Bost., 1880. 4 v. 8°. [4]

Massachusetts. *Secretary of State, continued.*

— - 38th report relating to the registry and return of births, mar
deaths, 1879. Bost., 1880. 8°. [4]

— *State Almshouse at Tewksbury.* 27th annual report, 1880. Bost., 1

— *State Board of Health, Lunacy, and Charity.* 2d annual report.
8°. [4]

— *State Director of Art Education.* Annual report on industrial art
1880. By W. Smith. Bost., 1881. 8°. [4]

— *State Industrial School for Girls at Lancaster.* By-laws and statu
government and regulation of the School. Bost., 1866 16°. 53

— *State Lunatic Hospital at Danvers.* 3d annual report, 1880.
8°. [4]

— *State Lunatic Hospital at Northampton.* 25th annual report, 1
1881. 8°. [4]

— *State Lunatic Hospital at Taunton.* 27th annual report, 1880.
8°. [4]

— *State Lunatic Hospital at Worcester.* 48th annual report and [3d
the Temporary Asylum for the Chronic Insane, 1880. Bost., 18

The 1st and 2d reports of the Temporary Asylum are bound with the 46th and
of the State Lunatic Hospital.

— - Reports and other documents relating to the Hospital.
8°. [4]

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erection of a hospital. — Communication from commissioners and trustees. — Pr
governor. — 1st-4th annual report of the trustees, superintendent, *etc.* — Appendi

— *State Normal Art School.* Circular, 1880-81. Bost., 1880. 8°. [4]

— *State Primary and Reform Schools.* Annual report of the trustees
annual reports of the resident officers, 1880. Bost., 1881. 8°. [

— *State Reform School at Westborough.* Revised by-laws for the g
and regulation of the School. Westborough, 1877. 8°. 16 p.

— *State Workhouse at Bridgewater.* [27th] annual report, 1880.
8°. [4]

— - *See* **Massachusetts.** *General Court.*

— *Supreme Judicial Court.* Massachusetts reports, 128-129. 1879-80.
rop, reporter. Bost., 1881. 2 v. 8°. [4]

— - *See* **Bennett, E. H**, *and others.*

— *Tax Commissioner.* Report, 1880. Bost., 1881. 8°. [4]

— - Tax documents, 1879-80. Bost., 1879-80. 2 v. 8°. [4]

Contents.

1879. No. 1. Compilation of enactments regulating taxation by the local
2. Report of the tax commissioner, 1879. — 3. Tables of quotations of stocks
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1880. No. 1. Acts of 1880, regulating taxation by the local assessors. — 2.
tax commissioner, 1880. — 3. Tables of quotations of stocks and securities taxable
ors of cities and towns.

— *Treasurer.* Abstract of returns of corporations, Dec., 1864.
8°. [4]

— *Treasurer and Receiver-General.* Report, 1880. Bost, 1881. 8°.

— *Finance, Government, etc.* *See* **Bird, F. W.**; — **Loring, G. B.**; —
G. A.; — **Parker, F. J.**; — **Pitman, R. C.**

— *Regimental histories.* *See* **Boles, A. J.**; — **Clark, W. H.**; — **Un**
A. B.

Massachusetts, Cities and towns of. [Reports of receipts and
tures, 1880-81.] [3]

— [Reports of school committees, 1880-81.] [3]

Massachusetts Agricultural College. Address to the alumni
H. Bowker, W. Wheeler, and W. A. Macleod Bost., 1881.] 8°.

— 18th annual report. Bost., 1881. 8°. [3]

— *See* **Wheeler, W.**

Massachusetts Charitable Eye and Ear Infirmary. 55th ann
1880. Bost., [1880]. 8°. [3]

ıssachusetts Charitable Mechanic Association. Proceedings on laying the corner-stone of the building for all the uses of the Association, March 15, 1881. Bost., 1881. 8°. 28 p. [3]

See **Buckingham, J. T.**

ıssachusetts College of Pharmacy. 15th annual catalogue, 1881-82. Bost., [1881]. 8°. [3]

ıssachusetts General Hospital. 67th annual report, 1880. Bost., 1881. 8°. [3]

ıssachusetts Geneva Award Association. Geneva award. Petition to the Congress of the United States. *n p., n.d.* 8°. 16 p. [3]

[Statement of the Geneva Award question to the Boards of Trade and Chambers of Commerce of the various cities of the country. Bost., 1881.] 8°. 11 p. [3]

ıssachusetts Historical Society. Proceedings. Vol. 18. 1880–81. Bost., 1881. 8°. Portraits. [3]

ıssachusetts Horticultural Society. History of the Society. 1829-78. Bost., 1880. 8°. Portrait and illus. [1]

ıssachusetts Institute of Technology. Abstract of the proceedings of the Society of Arts, 19th year, 1880-81. Bost., [1881]. 8°.

16th annual catalogue of officers and students, 1880-81. Bost., 1880. 8°. [3]

With a list of the alumni, *etc.*

ıssachusetts Medical Society. *See* **Green, S. A.**

ıssachusetts School of Agriculture. [Prospectus, charter and by-laws, *etc.*] Springfield, 1862. 8°. 8 p. [3]

ıssachusetts Society for the Prevention of Cruelty to Animals. Some facts and considerations suggested by the argument of J. L. Stackpole, against the bill to prohibit pigeon shooting. Bost., 1879. 8°. 10 p. [3]

ıssachusetts Society for the Promotion of Agriculture. Publications. Bost., 1881. 12°. [3]

Namely.

Des Cars, A. J., *comte.* Treatise on pruning forest and ornamental trees.

ıssachusetts Society for the University Education of Women. Report, 1881. Bost., 1881. 16°. [3]

ıssachusetts Society of the Cincinnati. List of members; including a complete roll of the original members, with brief biographies. Bost., 1880. 8°. [3]

ıssachusetts Temperance Alliance. 15th annual report, 1866. Bost., 1866. 8°. [3]

ıssachusetts Total Abstinence Society. Annual reports, 1880. Bost., [1881]. 8°. [3]

atthews, James M. Digest of the laws of Virginia, [1856]. *See* **Virginia.**

atthews, Stanley. Address before the literary societies of the University of Wooster, June 20, 1876. Cincin., 1876. 8°. 29 p. [3, *Author.*]

Address before the 34th annual national convention of the society of the Beta Theta Pi, Cincinnati, Dec. 29, 1873. Cincin., 1874. 8°. 23 p. [3, *Author.*]

Address to alumni of Kenyon College, June 23, 1880. Cincin., 1880. 8°. 33 p. [3, *Author.*]

Oration at the reunion of the Army of the Cumberland, Columbus, Ohio, Sept. 16, 1874. Cincin., 1875. 8°. 22 p. [3, *Author.*]

The relation of the state to religious education. J. D. Minor et al. *versus* The Board of Education of the City of Cincinnati et al. Argument for the defense. Cincin , 1870. 8°. 87 p. [3, *Author.*]

Speech at Athens, Ohio, Aug. 25, 1877, on political questions. Cincinnati, 1877. 8°. 62 p. [3, *Author.*]

Matthews, Stanley, *continued.*

— Unveiling of Ward's equestrian statue of Major-Gen. George
Washington, Nov. 19, 1879. Address. Cincin., 1879. 8°. 30 p.
Author.]

Maxcy, Virgil. **Laws** of **Maryland,** [1811]. *See* **Maryland.**
sembly.

May, John Wilder. The law of crimes. **Bost.,** 1881. 16°. [1]

May, Joseph. William Lloyd Garrison. A commemorativ
preached at the First Unitarian Church, Philadelphia. Bo
24 p. [3]

May, Samuel Joseph. In memoriam. S. J. May. Syracuse, 1871.

Mayer, Brantz. Calvert and Penn; or, The growth of civil a
liberty in America, as disclosed in the planting of Maryland a
vania. Discourse before the Pennsylvania Historical Societ
1852. [Bost., 1852.] 8°. 49, (1) p. [3]

Mayer, Lewis. Baltimore city code, 1879. *See* **Baltimore.** *Cit*

Means, James Howard. *See* **Dorchester,** *Mass.* **Second Churc**

Medfield, *Mass.* Proceedings at the dedication of the town ha
1872: with account of the re-dedication, Nov. 2, 1874; sketches
etc.; and a record of soldiers in the war of the rebellion. M
8°. 63, (2) p [2]

Medford directory. *See* **Malden.**

Medical register for New England. *See* **Brown, F. H.**

Medicine. *See* **Oregon State Medical Society; — Toner, J. M**

Medley, George W. The reciprocity craze. Lond., 1881. 16°. 36
Club. [Publ.]) [3]

Melrose directory. *See* **Malden.**

Memminger, C. G. Speech in the House of Representatives of
lina, upon the bill and resolutions relating to bank issues and
Dec., 1857. Charleston, 1858. 8°. 37, (9) p. [1]

Memphis, *Tenn. Board of Education.* 20th, 23d, 25th-28th an
1870/71, 73/74, 75/76–78/79, 81. Memphis, 1871-81. 8°. [2]

— *Board of School Visitors.* 15th annual report, and Superintend
1866-7. Memphis, 1867. 8°. [2]

— *See* **Keating, J. M.**

Mendon, *Mass.* *See* **Clark,** G. F.; — **Metcalf,** J. G.

— **First Church.** *See* **Staples,** C. A.

Menzies, Sutherland. Turkey old and new: historical, geogr
statistical. Lond., 1880. 2 v. 8°. Illus. [1]

Mercer, John. Exact abridgement of all the public acts of Vi
See **Virginia.**

Merle d'Aubigné, Jean Henri. Le Luthéranisme et la réforme o
sité essentielle à leur unité. Paris, 1844. 8°. 52 p. (**Pm.,** v. 1

Merrill, J. L., *editor.* History of Acworth, [N.H.], with the pro
the centennial anniversary, genealogical records, and regist
Acworth, 1869. 8° Portraits. [1]

Merrill, Joseph. History of Amesbury, including the first seve
of Salisbury, to the separation in 1654; and Merrimac from it
tion in 1876. Haverhill, 1880. 8°. Map, portraits and illus. [

Merrill, Moody. Opening argument before the committee on str
for the remonstrants, against the petitions of L. A Bigelow
and C. E. Powers and others, for acts of incorporation as elev
companies, Feb. 20, 1879. Reported by G. C. Burpee. Bo
53 p. [3]

Metcalf, Edwin. Personal incidents in the early campaigns
regiment Rhode Island volunteers and the tenth army corps.
1879. sm. 4°. 31 p. (**Rhode Island Soldiers and Sailors**
Personal narratives, no. 9.)

etcalf, John George. Annals of the town of Mendon, [Mass.], 1659-1880. Providence, R.I., 1880. 8°. Portrait. vii, 723 p. [1]

eteorology. *See* **Taber,** C. A. M.; — **United States.** *Naval Observatory.*

ethodists. *See* **New England Methodist Historical Society.**

ethuen directory. *See* **Lawrence.**

etternich-Winneburg-Ochsenhausen, Clemens Wenzel Nepomuk Lothar, *Reichsfürst* von. Memoirs, 1815-29. Ed. by Prince Richard Metternich. Tr. by Mrs. A. Napier. Vol. 3-4. N.Y., 1881. 2 v. 8°. [1]

exico. *See* **Cubas,** A. G.; — **Hamilton,** L.

ichels, Ivan C. The current gold and silver coins of all nations reduced to the standard of the United States. Also, the history of the official coinage of the United States Mint from 1792. Phila., 1880. f°. Illus. [1]

ichigan. *Commissioner of Mineral Statistics.* 1st annual report, for 1877-8, and previous years. Marquette, 1879. 8°. [2]

Commissioner of Railroads. 1st-5th, 8th annual report, 1872-76, 79. Lansing, 1874-80. 6 v. 8°. [2]

Courts. *See* **Binmore,** H. Index-digest of the Michigan reports.

Institution for the Education of the Deaf and Dumb, and the Blind. 10th biennial report, 1871-72. Lansing, 1872. 8°. [3]

An appendix contains the proceedings of the national conference of Principals of Institutions for the Deaf and Dumb, at Flint, Mich., Aug. 14-15, 1872.

Legislative Council. Laws of the territory, condensed, arranged, and passed by the 5th Legislative Council. Detroit, 1833. 8°. 623 p. [1]

Legislature. Joint documents, [1844], 51-54. Detroit, Lansing, 1845-55. 5 v. 8°. [2]

State Agricultural Society. Transactions, with reports of county agricultural societies, [1849]-51. Vol. [1]-3. J. C. Holmes, Secretary. Lansing, 1850-52. 3 v. 8°. [3]

Transactions, 1850, have an appendix containing the statistics of Michigan, 1850.

State Board of Agriculture. [1st] annual report of the Secretary, 1862. Lansing, 1862. 8°. [3, *Charles L. Flint, Boston.*]

State Commissioners and Superintendent [of] State Fisheries. 3d-4th report, 1877-80. Lansing, 1879-81. 8°. [3]

State Library. Report of the state librarian, 1877-78. Lansing, 1878. 8°. [2]

State Reform School. History of the school since its organization, to 1880. Lansing, 1880. 8°. 15 p. [3]

Superintendent of Public Instruction. 43d annual report, with accompanying documents, 1879. Lansing, 1880. 8°. [2]

The accompanying documents comprise reports of the University of Michigan, the State Normal School, *etc.*

See **American** biographical history.

ichigan Central Railroad Company. Report of the directors, with the reports of the treasurer, superintendent, *etc.*, 1874. Bost., 1874. 8°. [4]

ichigan Southern and Northern Indiana Railroad Company. Annual report, 1867. Toledo, 1867. 8°. [4]

iddleborough, *Mass.* The water supply question for the town of Middleborough. [Report of committee.] *n.p., n.d.* 8°. 8 p. [3]

iddlesex County, *Mass.* Statement of receipts and expenditures of the county, for the year ending Dec. 31, 1864-67, 72, 74. Charlestown, 1865-75. 8°. [3]

iddlesex County directory, 1875, 79-80. Bost., 1875-79. 2 v. 8°. [1]

iles, Henry, *Jr.* The one hundred prize questions in Canadian history, and the answers of "Hermes," the winner of the first prize. Montreal, 1880. 8°. [3, *Author.*]

ilford, *Mass.* Greenough's directory of Milford, for 1880. Bost., 1880. 8°. [1]

ilitary art and science. *See* **De Peyster,** J. W.; — **Wilhelm,** T.

Military Historical Society of Massachusetts. The peninsular campaign of General McClellan in 1862. Papers read before the Society, 1876-80. Vol. 1. Bost., 1881. 8°. Maps. [1]

Contents.

Vol. 1. **Ropes,** J. C. Gen. McClellan's plans for the campaign of 1862. — **Palfrey,** J. C. The siege of Yorktown. — **Palfrey,** F. W. The period which elapsed between the fall of Yorktown and the beginning of the seven-days battles; — The seven-days battles, to Malvern Hill; — The battle of Malvern Hill. — **Whittier,** C. A. Comments on the peninsular campaign.

Mill, John Stuart, *pseud.* The social and political dependence of women. Bost., 1868. 16°. 86 p. [1]

Millbury, *Mass.* Annual reports of town officers for the year ending March 1, 1860, with the valuation and tax list. Worcester, [1860]. 8°. [2]

— Valuation and taxes for the year 1859. *n.p.*, 1859. 8°. 22, (1) p. [2]

Miller, Stephen B. Historical sketches of Hudson, [N.Y.]. Hudson, 1862. 8°. [1]

Miller, William E., *and* **Field,** George W. Federal practice: consisting of the statutes of the United States relating to the organization, jurisdiction, practice, *etc.*, of the Federal courts. Des Moines, 1881. 8°. 716 p. [1]

Miller, William J. Celebration of the 200th anniversary of the settlement of Bristol, R.I., Sept. 24, 1880. [Providence, 1881.] 8°. [1]

The address was delivered by Prof. J. L. Diman.

— Notes concerning the Wampanoag tribe of Indians, with some account of a rock picture on the shore of Mount Hope Bay, in Bristol, R.I. Providence, 1880. 12°. [1]

Milton, *Mass.* The proposed library for the town of Milton. Report [of the committee, written by E. L. Pierce. Milton, 1870]. 8°. 4 p. [3, *Author.*]

— *See* **Breck,** C.; — **Pierce,** E. L.

Milton Academy, *Milton, Mass.* History of Milton Academy. 1798-1879. [Prepared by A. K. Teele.] Bost., 1879. 8°. 29, (1) p. [3]

Milwaukee, *Wis. School Board.* Annual report, 1876. Milwaukee, 1876. 8°. [2]

— - Proceedings, May 4, 13, June 1, July 6, 26, Aug. 3, Sept. 7, Oct. 5, 1880, April 5, May 3, 13, 1881. *n.t.p.* [Milwaukee, 1880-81.] 8°. [2]

Minerals. *See* **Michigan.** *Commissioner of Mineral Statistics.*

Mines *and* **Mining.** *See* **Engineering** and mining journal; — **Knox,** T. W.; — **Morrison,** R. S.

Minnesota. *Commissioner of Statistics.* Statistics of Minnesota for 1880, being the 12th annual report. St. Peter, 1881. 8°. [2]

— *Geological and Natural History Survey.* 2d-8th annual report, 1874-79. By N. H. Winchell, [and others]. St. Paul, 1875-80. 6 v. 8°. Maps and plates. [3, *N. H. Winchell.*]

The 2d report is a part of the "Annual report of the University of Minnesota, 1873."

— - Miscellaneous publications, no. 8. Preliminary report on the building stones, clays, limes, cements, roofing, flagging and paving-stones of Minnesota. By N. H. Winchell, State Geologist. St. Paul, 1880. 8°. 37 p. [3, *N. H. Winchell.*]

— *Legislative Assembly and Legislature.* General laws, 22d session, 1881. St. Peter, 1881. 8°. [2]

With an appendix containing the report of the state treasurer.

— - Session laws of the territory, [6th] session, 1855. Minneapolis, 1855. 8°. [1]

— *State Normal School.* Annual catalogue of the officers and students, 1879/80, with annual circular for 1880/81. Winona, 1880. 8°. [3, *I. Shepard, Winona.*]

— *Superintendent of Public Instruction.* [9th] annual report, 1868; 1st biennial report, 1879-80, 20th report in the series. Saint Paul, St. Peter, 1869-80. 2 v. 8°. [2]

The 5th-7th reports are contained in the Executive documents of Minnesota, 1864-66.

Minnesota, *continued.*

— *Supreme Court.* *See* **Eller**, H. C. Digest of decisions.

— *See* **Farrar**, M.

Minnesota Historical Society. Biennial report, 1881. St. Peter, 1881. 8°. [3]

— The Carver centenary; account of the celebration of the 100th anniversary of the council and treaty of Capt. J. Carver with the Naudowessies, May 1, 1767, at the "Great Cave," now Saint Paul, held May 1, 1867. Saint Paul, 1867. 8°. 23 p. Portrait. [3]

— Collections. Vol. 3. Part 3. Saint Paul, 1880. 8°. [3]

Contents.

Vol. 3. Part 3. **Williamson**, T. S. The Sioux or Dakotas. — **Goodrich**, E. S. Memoir of Rev. S. Y. McMasters. — Tributes to the memory of Rev. John **Mattocks**. — Life and public services of Willis A. **Gorman**. — **Baker**, J. H. Lake Superior, its history, fur trade, *etc.* — **Riggs**, S. R., *and others.* Memorial notices of Rev. Gideon H. Pond. — **Riggs**, S. R. In memory of Rev. Thos. S. Williamson. — **Flandrau**, C. E. The Ink-pa-du-ta massacre of 1857.

— The Hennepin bi-centenary. Account of the celebration of the 200th anniversary of the discovery of the Falls of St. Anthony, by L. Hennepin. Saint Paul, 1880. 8°. (6) p. [3]

Missions. *See* **American Board of Commissioners for Foreign Missions**; — **Manning**, J. M.

Mississippi. *Legislature.* Laws, regular biennial session, 1842; regular session, 1850; called session, 1850. Jackson, 1842–50. 3 v. 8°. [1]

— — The revised code of the statute laws, prepared by J. A. P. Campbell and adopted in 1880. Jackson, 1880. l. 8°. 941 p. [2]

— *State Superintendent of Public Education.* Annual report, 1876. Jackson, 1877. 8°. [2]

— *Supreme Court.* Reports of cases. Vol. 57. 1879-80. Reporters: J. A. Brown, J. B. H. Hemingway. Bost., 1880. 8°. [2]

The reporters alternate, vol. 57 is by Brown.

Missouri. *Commissioner of Statistics.* 2d annual report, 1867. Jefferson City, 1868. 8°. [2]

— *General Assembly.* Annotated pocket edition of the revised statutes of 1879. Arranged by C. A. Winslow. St. Louis, 1879. 16°. x, 861 p. [1]

— — Laws, 31st General Assembly, 1881. Jefferson City, 1881. 8°. [2]

— *St. Louis Court of Appeals.* *See* **Berry**, A. M. Cases, 1879-80, v. 7–8.

— *State Board of Agriculture.* 6th annual report, with an abstract of the proceedings of the county agricultural societies for 1870. Ed. by C. W. Murtfeldt. Jefferson City, 1871. 8°. [2]

— *State Entomologist.* 3d annual report on the noxious, beneficial and other insects of Missouri. By C. V. Riley. Jefferson City, 1871. 8°. [2]

— *State Horticultural Society.* Transactions, 12th annual meeting, [1870]. Jefferson City, 1871. 8°. [2]

— *State Superintendent of Public Schools.* 31st report, [1880]. Jefferson City, 1881. 8°. [2]

— *Supreme Court.* Reports of cases, [1879-80]. T. K. Skinker, state reporter. Vol. 70-71. Kansas City, 1880–81. 2 v. 8°. [2]

— *See* **Barns**, C. R., *editor*; — **Missouri Immigration Society**; — **Waterhouse**, S.

Missouri Historical Society. Publications, no. 1–4. St. Louis, 1880. 8° and 16°. [2]

Contents.

No. 1. **Wherry**, W. M. The campaign in Missouri and the battle of Wilson's Creek, 1861.
2. **Waldo**, W. Recollections of a septuagenarian.
3. **De Wyl**, N. Archæological explorations in Cole Co., Mo. — **Broadhead**, G. C. Prehistoric remains in Missouri.
4. Amended charter and by-laws, 1880.

Missouri Immigration Convention. Official proceedings of the Missouri Immigration Convention, St. Louis, April 13–15, 1880. [St. Louis, 1880.] 8°. [3]

Missouri Immigration Society. Hand-book of Missouri. 2d
Louis, 1880. l. 8°. Map. [3]

Missouri River, Fort Scott and Gulf Railroad Company. Rep
bondholders and stockholders, Dec. 31, 1874. Bost., 1875. 8°. 3

Missouri University. Report of the Normal School. From the
1880-81. Jefferson City, 1881. 8°. [3]

Mitchell, Arthur. The past in the present. What is civilizatio
1881. 8°. Illus. [1]

Mollusca. *See* **Brussels. Société Malacologique de Belgiqu**
York. *State Museum of Natural History.*

Money. *See* **Brown,** A. B.; — **Cernuschi, H.;** — **Heywood, E. H**
ton, S. D.; — **Howe,** J. B.; — **Kelly,** W. D.; — **Stansfeld, H.;** -
States. *Department of State.*

Mongredien, Augustus. History of the free-trade movement in
N.Y., 1881. 16°. [1]

— The Western farmer of America. Lond., *etc.*, 1880. 16°. 30 p.
Club. [Publ.]) [3]

Montague, *Mass.* *See* **Peske-ompsk-ut.**

Montana. *Legislative Assembly.* Council journal, 1st-4th sessio
extraordinary session, 1867; 5th-7th session, 1868-72; extraordina
1873; 8th-10th session, 1874-77. Virginia City, Helena, 1866-77.
[2]

— - House journal, 2d-4th session, 1866-67; extraordinary session,
7th session, 1868-72; extraordinary session, 1873; 8th-10th sessio
Helena, 1867-77. 11 v. 8°. [2]

— - Journals of the Council and House, extraordinary session, 11t
tive Assembly, 1879. Salt Lake City, 1879. 8°. [2]

— *Superintendent of Public Instruction.* Annual report, 1880. Hel
8°. [2]

— *Supreme Court.* Reports of cases, 1877-80. By H. N. Blake and C
Vol. 3. Albany, 1880. 8°. [2]

Montgomery, Joseph. *See* **Forster, J. M.**

Montgomery, Z. State of the Union. Speech in the Assembly of C
Feb. 11, 1861. *n.p.*, [1861]. 8°. 15 p. [3]

Montreal. *Chief Engineer.* Letter of chief engineer, in reply to
of council for information respecting water-works. Montreal
15 p [3]

— *City Inspector.* Rapport de l'inspecteur de la cité, 1853. Montrea
[3, *De L. A. Huguet-Latour, Montreal.*]

— **Board of Trade.** Statements relating to the home and foreig
Canada; also, annual report of the commerce of Montreal, 1869
16th publication. By W. J. Patterson. Montreal, 1870-80. 10 v

— **Natural History Society.** Constitution and bye-laws, with dire
preserving and forwarding objects of natural history, 1828.
1828 8°. 25 p. [3]

— **Société Historique de Montréal.** Mémoires et documents
l'histoire du Canada. Montreal, 1859. 8°. 63 p. [3]

Moody, Loring. The higher demands of humanity. [Bost., 1880.]
[3]

Moody family. *See* **Eliot,** *Mass.*

Moore, John M. Reports, 1879. *See* **Arkansas.** *Supreme Court.*
v. 34.

Moore, Joseph, *Jr.* Outlying Europe and the nearer Orient. Ph
8°. [1]

Moore, T. W. Treatise and hand book on orange culture in Florid
sonville, 1877. 8°. 73 p. [3]

Moors in Spain. *See* **Coppée, H.**

orfill, William Richard. Russia. With illus. Lond., 1880. 16°. Maps. (**Pulling,** S. F., *ed.* Foreign countries.) [1]

organ, Appleton. Anglo-American international copyright, being an open letter to Hon. W. M. Evarts, Secretary of State. N.Y., 1879. 16°. 55 p. [1]

orley, John, *editor.* English men of letters. N.Y., 1880-81. 5 v. 12°.

Namely.

Colvin, S. Landor.
Fowler, T. Locke.
Myers, F. W. H. Wordsworth.
Nichol, J. Byron.
Saintsbury, G. Dryden.

ormonism. *See* **Cannon,** G. Q.

orris, Alexander. The treatise of Canada with the Indians of Manitoba and the North-West Territories. Toronto, 1880. 16°. [2]

orris, Charles. Autobiography. With portrait and notes. Bost., 1880. 8°. [1]

orrison, Leonard Allison. History of the Morison or Morrison family, with most of the "Traditions of the Morrisons" (Clan Mac Ghillemhuire) hereditary judges of Lewis, by Capt. F. W. L. Thomas, and a record of the descendants of the hereditary judges to 1880. Bost., 1880. 8°. Portraits, map and illus. [1]

orrison, R. S. Mining rights in Colorado. Lode and placer claims, possessory and patented. Statutes in full. 4th ed. Denver, 1880. 16°. [1]

orrison family. *See* **Morrison,** L. A.

orse, Abner. A genealogical register of the inhabitants and history of Sherborn and Holliston. Bost., 1856. 8°. Portraits and map. [1]

ortgages. *See* **Jones,** L. A.

orton, William Thomas Green. Proceedings in behalf of the Morton testimonial. Bost., 1861. 8°. 56 p. [4]

ossmann, Samuel. Japan. With illus. Lond., 1880. 16°. Map. (**Pulling,** S. F., *ed.* Foreign countries.) [1]

oulton, C. W. Review of General Sherman's Memoirs examined, chiefly in the light of its own evidence. Cincin., 1875. 8°. 87 p. [3]

oulton, Thomas. Porter as a portion of Maine: its settlement, etc. Portland, 1879. 8°. 96 p. [1]

ount Auburn Cemetery. Annual report of the trustees, *etc.*, 1881. Bost., 1881. 8°. [3]

ount Hamilton, *Cal.* *See* **Burnham,** S. W.

ount Hope Cemetery. By-laws of the trustees, with a list of proprietors, avenues, &c. Bost., 1873. 24°. 55 p. [2]

ulhall, Michael G. Balance-sheet of the world for ten years, 1870-80. With coloured diagrams. Lond., 1881. 16°. [1]

— The progress of the world in arts, agriculture, commerce, manufactures, *etc.*, since the beginning of the 19th century. Lond., 1880. sm. 8°. [1]

üller, (Friedrich) Max. Chips from a German workshop. Vol. 5. N.Y., 1881. sm. 8°. [1]

Contents.

Vol. 5. Miscellaneous later essays.

— The sacred books of the East. Vol. 1-7, 9-10. Oxford, 1879-81. 9 v. 8°. [1]

Contents.

Vol. 1. The Upanishads. Tr. by F. M. Müller. Part 1.
2. The sacred laws of the Aryas as taught in the schools of Âpastamba, Gantama, Vâsishtha, and Baudhâyana. Tr. by G. Bühler. Part 1. Âpastamba and Guatama.
3. The sacred books of China; the texts of Confucianism. Tr. by J. Legge. Part 1. The Shû King, the religious portions of the Shih King, the Hsiâo King.
4. The Zend-Avesta. Part 1. The Vendidâd. Tr. by J. Darmesteter.
5. Pahlavi texts. Tr. by E W. West. Part 1. The Bundahis, Bahman Yast, and Shâyast lâ-shâyast.
6. The Qur'ân. Tr. by E. H. Palmer. Part 1. Chapters 1-16.
7. The institutes of Vishnu. Tr. by J. Jolly.
9. The Qur'ân. Tr. by E. H. Palmer. Part 2. Chapters 17-114.
10. Part 1. The Dhammapada. Tr. from Pâli by F. M. Müller. Part 2. The Sutta-Nipâta. Tr. from Pâli by V. Fausböll.

üller, Iwan, *editor.* English philosophers. N.Y., 1881. sm. 8°. [1]

Namely.

Farrer, J. A. Adam Smith.

Municipal corporations. *See* **Dillon,** J. F.

Munro, Wilfred H. History of Bristol, R.I. The story of the
lands from the visit of the Northmen to the present time. I
dence, 1880. 8°. Portraits. [1]

Munson, Loveland. The early history of Manchester. An ad
chester, Vt., Dec. 27, 1875. Manchester, 1876. 8°. 63 p. [1]

Murray, Nicholas. Notes, historical and biographical, concernin
Town, [N.J.]. Elizabeth-Town, 1844. 12°. [1]

Music Teachers' National Association. 4th annual meeting, 18
[1880]. 8°. [3]

Myer, William G. A digest of the Texas reports. Embracing
in Dallam; v. 1 to 51 inclusive of the Texas reports; and th
volumes of the Court of Appeals reports. [Vol. 1-2.] St.
2 v. l. 8°. [1]

Contents.

Vol. 1. A—L. 2. M—Z.

Myers, F. W. H. Wordsworth. N.Y., 1881. 12°. (**Morley,** J.,
men of letters.) [1]

Mystic River. *See* **Stackpole,** J. L.

Nahant, *Mass.* *See* **Hopkins,** G. M.

Names. *See* **Clarke,** J. F.

Nantasket. Directory and guide book of Nantasket Beach, and
directory of Hull, 1881. L. G. Trott, publisher. Bost., [1881
[3, *S. P. Mayberry, Boston.*]

— Residents of Nantasket and environs, including Downer Lan
1880. Bost., [1880]. 12°. 49 p. [1]

Nantucket. *School Committee.* Report of a committee of tea
course of studies [for] the public schools. Nantucket, 1855. 8

— *See* **Northrup,** A. J.

Nantucket Agricultural Society. Transactions, 1880, with th
miums for 1880. Nantucket, 1880. 8°. [3]

Naples. *See* **Gladstone,** W. E.

Nash, Joseph. The relations between capital and labor in the U
The first-prize essay awarded by the Boston Young Men's Chr
1878. Bost., 1878. 8°. 60 p. [3, *John W. Dickinson, Boston.*]

Nashua, *N.H.* *Board of Education and Superintendent of Public S*
annual report. Nashua, 1881. 8°. [2]

National Association for the Promotion of Social Scienc
tions, 1878–80. Lond., 1879-81. 3 v. 8°. [1]

National Association of Wool Manufacturers. The award
of exhibitors at the International Exhibition, 1876, in the de
textile materials, fabrics, and machinery. [Ed. by J. L. Ha
[1877]. 8°. iv, (4), 631 p. [3, *John L. Hayes, Cambridge.*]

— Bulletin, 1874-80. Vol. 5-10; 11, nos. 1-2. Bost., 1875-81. 8 v.
Hayes.]

National Board of Health. Bulletin. Vol. 1-2. *n.t.p.* Wa
2 v. 4°. [3]

National Board of Trade. 5th, 10th annual report of the exe
cil. *n.t.p.* [N.Y., Wash., 1872-79.] 8°. [3, *Hamilton A. Hill, B*

— Canadian reciprocity. Report and resolutions adopted by the
1877. Chicago, 1877. 8°. 11 p. [3, *Hamilton A. Hill, Boston.*]

— List of boards of trade and other commercial associations in
States. Bost., 1878. 8°. 6 p. [3, *Hamilton A. Hill, Boston.*]

— *Same.* 3d issue. Bost., 1880. 8°. 6 p. [3, *Hamilton A. Hill, Bo*

— The National Board of Trade: its past and its future. Report
tee of the executive council, Dec. 12, 1878. Bost., 1878. 8°. 11
ilton A. Hill, Boston.]

ional Board of Trade, *continued.*

roceedings, 11th annual meeting, 1880. Bost., 1881. 8°. [3, *Hamilton A. Hill, Boston.*]

ional Commercial Convention. Memorial to Congress. *h.t.p.* [Bost., 1868.] 8°. 15 p. [1]

ional Conference of Unitarian and other Christian Churches. Report of 9th meeting, Saratoga, Sept. 21-24, 1880. Bost., 1881. 8°. [3]

ional Deaf-Mute College, *Washington, D.C.* Announcement of the College, 1879-80. Wash., 1880. 8°. [3]

See also **Columbia Institution for the Deaf and Dumb.**

ional Educational Association. Addresses and journal of proceedings, 1876, 1880. Salem, Ohio, 1876-80. 2 v. 8°. [3]

ional Liberal Federation. Practical politics. No. 1-3. Lond., 1879-80. 8°. [1]

Contents.

No. 1. **Howard, J.** The tenant farmer: land laws and landlords.
2. **Duff, M. E. G.** Foreign policy.
3. **Lefevre, G. S.** Freedom of land, 1880.

ional Temperance Society. 15th annual report, 1880. N.Y., 1880. 8°. [3]

oderation *vs.* Total abstinence; or, Dr. Crosby and his reviewers. N.Y., 1881. 16°. [1]

Contents.

A calm view of the temperance question, by H. Crosby, with reviews and replies by M. Hopkins, W. Phillips, and others.

ions, Condition of. *See* **Kolb, G. F.,** *Freiherr* von.

ural history. *See* **American** naturalist; — **Boston Society of Natural History**; — **Buffalo Society of Natural Sciences**; — **Cunningham, R. O.**; — **Montreal. Natural History Society**; — **New York.** *Regents of the University, — State Museum of Natural History*

al art and science. *See* **Hamersly, L. R.**; — **King, J. W.**; — **Mason, T. B. M.**; — **United States.** *Department of the Navy.*

d, Benjamin M. A brief review of the financial history of Pennsylvania, and of the methods of auditing public accounts. With lists of the finance committees and accounting officers, 1682-1881. Harrisburg, 1881. 8°. 56 p. [2]

harter and laws of Pennsylvania, 1682-1700. *See* **Pennsylvania.** *Secretary of State.*

raska. *Commissioner of Common Schools.* 2d annual report, 1860. [With the school laws, forms and instructions.] Omaha City, 1861. 8°. [2]

See also State Superintendent of Public Instruction.

egislature. Compiled statutes, comprising all laws of a general nature in force July 1, 1881. By G. A. Brown. Omaha, 1881. l. 8°. viii, 806 p. [1]

House journal, 5th session and 1st regular session, with accompanying documents, 1869. Omaha, 1869. 8°. [2]

School laws as amended in 1879, with explanatory notes and forms. By S. R. Thompson, Superintendent of Public Instruction. Lincoln, 1879. 8°. 80 p. [2]

Senate journal, 5th session and 1st regular session, 1869 [with the journal of the 4th session, 1868]. Omaha, 1869. 8°. [2]

tate Board of Agriculture. Transactions, 1876-79. Lincoln, 1880. 8°. [2]

tate Horticultural Society. Annual reports, 1878-79. Lincoln, 1879. 8°. [2]

tate Superintendent of Public Instruction. 1st-[2d], 6th, 10th, 12th annual report, 1869-70, 74, 78, 80. Omaha, Lincoln, 1869-80. 8°. [2]

See also Commissioner of Common Schools.

Statistics of the public schools of Nebraska for the year ending April 7, 1879. Compiled by S. R. Thompson. Lincoln, 1879. 8°. 13 p. [2]

Nebraska, *continued.*

— *Supreme Court.* Reports of cases, 1880. Vol. 10. By G. A. B
coln, 1880. 8°. [2]

— *See* **Edmands,** J. W.; — **Everett,** E.; — **Wilber,** C. D.

Needham, *Mass.* *See* **Mackintosh,** J.; — **Train,** C. R.

Negro. *See* **Orr,** G. J.; — **Stetson,** G. R.

Netherlands. Geregtelijke statistiek van het koningrigk der N
1879. 's Gravenhage, 1880. 4°. [2]

— Elementary and middle-class instruction in the Netherlands. F
the Royal Commission. Leyden, 1876. 8°. [1]

— *See* **De Peyster,** J. W.

Neutrality. *See* **Adams,** C. F.; — **Sumner,** C.

Nevada. *Legislature.* Journal of the Assembly, 9th-10th sessi
San Francisco, Carson City, 1879-81. 2 v. 8°. [2]

— — Journal of the Senate, 9th-10th session, 1879-81. San Franci
City, 1879-81. 2 v. 8°. [2]

— — Statutes, 10th session, 1881. Carson City, 1881. 8°. [2]

Appended is the annual report of the Treasurer for 1880.

— *Supreme Court.* Reports of cases, 1880. Reported by C. F. B
T. P. Hawley. Vol. 15. San Francisco, 1881. 8°. [2]

New Bedford, *Mass.* History of the churches of New Bedford, [w
of other moral and religious organizations. With memoirs o
[and others]. New Bedford, 1869. 18°. [1]

— Report of the board of firewards, 1846, [48]. New Bedford
8°. [2]

— Report of the board of overseers, 1843/44, 45/46, 46/47. New Be
[47]. 8°. [2]

— Report of the committee on elections. [New Bedford, 1853.] 8°.

— Report of the selectmen, on the financial concerns of the town,
ending March 31, 1844-April 28, 1845. [New Bedford, 1844-45.]

— *Acushnet Water Board.* Report, 1870; 10th annual report, 1879.
ford, 1871-79. 2 v. 8°. [2]

— *City Council.* Ordinances of the city with the city charter, an
orders of the city council. New Bedford, 1853. 8°. [2]

— *Free Public Library.* 28th-29th annual report. New Bedfo
8°. [3]

— *See* **Reed,** B. F. H.; — **Ricketson,** D.; — **Terrey,** M., *pseud.*; —
G. W.

New Bedford directory. Greenough's directory of New Bedfo
[No. 17.] Bost., 1879. 8°. Map. [1]

New Braintree, *Mass.* Valuation and taxes of the town, 1874, 76-
North Brookfield, [1874]-79. 8°. [3, *George K. Tufts, New Brai*

New Brunswick. *Chief Superintendent of Schools.* 8th annual rep
ericton, 1860. 8°. [3]

— *General Assembly.* Acts, 1880-81. Fredericton, 1880-81. 2 v. 8°.

New England. *See* **Albert Edward,** *Prince of Wales*; — **Brow**
Conant, G.; — **Felt,** J. B.; — **Goddard,** D. A.; — **Howard,**
Crocker, H. E.; — **Rollins,** *Mrs.* E. H.; — **Winthrop,** J.

New England business directory, 1881. No. 10. Bost., 1881. 8°.

Compiled by Sampson, Davenport & Co.

New England Historic, Genealogical Society. Address at
meeting, Jan. 20, 1858. By S. G. Drake. Bost., 1858. 8°. [1]

— *Same.* 1863-65. By W. Lewis, president. [With list of offic
and report of proceedings, 1865.] Bost., Albany, 1863-65. 8°.

— *Same.* 1867. By J. A. Andrew. Added, report of proceedin
1867. 8°. [3]

England Historic, Genealogical Society, *continued.*

ddress to the members of the Society, March 1, 1852, by W. Jenks. Bost., 852. 8°. [3]

ddresses of M. P. Wilder, annual meeting, Jan. 1, 1868, and special meetng, Jan. 16. Appended, reports of proceedings. Bost., 1868. 8°. [3]

rcular. Number 3. June, 1847. Bost., 1847. 8°. [3]

ame. Number 4. Jan., 1858. Constitution and by-laws. Bost., 1858. 8°. 3]

st of the members, Jan., 1877. With the officers and committees from the organization of the Society. Bost., 1877. 8°. 32 p. [3]

emorial biographies. Towne memorial fund. Vol. 1. 1845–52. Bost., 880. 8°. [1]

Contents.

Vol. 1. Introduction by H. A. Hazen. — William Durkee Williamson, by J. **Williamson.** — Benjamin Shurtleff, by H. S. **Shurtleff.** — Job Durfee, by T. **Durfee.** — Luther Wait, by A. D. **Wait.** — Samuel John Carr, by J. W. **Dean.** — James Kent, by J. **Kent.** — Timothy Pitkin, by T. C. **Pitkin.** — Samuel Hubbard, by *Mrs.* E. G. **Buck.** — John Quincy Adams, by C. F. **Adams.** — Merritt Caldwell, by W. H. **Allen.** — Nathaniel Morton Davis, by C. **Deane.** — Harrison Gray Otis, by A. T. **Perkins.** — Benjamin Franklin Thompson, by H. **Onderdonk.** — Lot Edward Brewster, by D. T. V. **Huntoon.** — Theodore Lyman, Jr., by T. **Lyman.** — Daniel Gilbert, by D. D. **Gilbert.** — Albert Gallatin, by H. **Adams.** — John Pierce, by W. B. **Trask.** — Theodore Cushing, by W. T. **Cushing.** — Samuel Turell Armstrong, by U. **Crocker.** — William Cogswell, by E. O. **Jameson.** — Joseph Sewall, by S. E. **Sewall.** — Daniel Putnam King, by B. C. **Perkins.** — Daniel Pinckney Parker, by J. W. **Dean.** — William Ely, by I. N. **Tarbox.** — William Pitt Greenwood, by I. J. **Greenwood.** — William Savage, by M. J. **Cooper.** — Henry Alexander Scammell Dearborn, by C. K. **Dillaway.** — Lewis Bradford, by B. **Kingman.** — Levi Woodbury, by C. L. **Woodbury.** — William Ingalls, by W. **Ingalls.** — Ebenezer Turell Andrews, by F. W. **Andrews.** — Israel Putnam Proctor, by J. W. **Proctor.** — Oliver Alden Taylor, by J. **Taylor.** — Henry Clay, by R. C. **Winthrop.** — James Luce Kingsley, by W. L. **Kingsley.** — Henry Holton Fuller, by H. H. **Fuller.** — James Whitcomb, by B. P. **Poore.** — Daniel Webster, by C. H. **Bell.** — Daniel Drake, by C. D. **Drake.** — Ralph Haskins, by D. G. **Haskins, Jr.** — David Henshaw, by A. H. **Ward.** — Amos Lawrence, by W. M. **Cornell.**

'he New England Historic-Genealogical Society to the General Court of Massachusetts; being a counter remonstrance to a "Memorial of the Massachusetts Historical Society" against the petition of the former for a change in its corporate name. 2d ed. Bost., 1858. 8°. 8 p. [3]

'roceedings, annual meeting, 1881. Bost., 1881. 8°. [3]

'roceedings, 25th Oct., 1880, commemorative of the organization of the government of Massachusetts, with the proceedings at the State House and at the City Hall. Bost., 1880. 8°. 67 p. [3]

Contains papers by W. W. Wheildon, T. C. Amory, N. F. Safford. Prefixed is an introduction and table of contents prepared by W. W. Wheildon, with the title "Massachusetts centennial: adoption of the constitution and the organization of the government, Oct. 25, 1780."

ee also **Bell, C. H.; — Sheppard, J. H.**

w-England historical and genealogical register, 1880. Vol. 34. Bost., 1880. 8°. Portraits. [1]

w England Hospital for Women and Children. Annual report for the year ending Sept. 30, 1879–80. West Newton, Bost., 1879–81. 8°. [3]

The report for 1879 is of the 2d ed., revised.

w England Industrial School for the Education and Instruction of Deaf Mutes at Beverly. 1st annual report, 1880–81. Beverly, 1881. 8°. [3]

w England journal of education. *See* **Journal** of education.

w England Methodist Historical Society. Proceedings, 1st annual meeting, 1881. Bost., 1881. 8°. [3, *W. S. Allen, Boston.*]

w Guinea. *See* **Albertis, L. M. d'.**

w Hampshire. *General Court.* Manual for the use of the General Court, 1881. Manchester, 1881. 18°. [3]

State Geologist. 1st annual report upon the geology and mineralogy of New Hampshire. By C. H. Hitchcock. Manchester, 1869. 8°. 36 p. Map. [2]

Superintendent of Public Instruction. Annual report, being the 34th annual report upon the public schools of New Hampshire, 1880. Manchester, 1880. 8°. [2]

New Hampshire, *continued.*

— *Supreme Court.* State *v.* U. S. & C. Express Co. Decided M *h.t.p.* [1881]. 8°. 13, 15 p. [3]

— *See* **Brown,** L. B.; — **Carter,** H. B.; — **Coffin,** C. C.

New Hampshire Historical Society. Proceedings, 1872-3, 74 1874-75. 8°. [3]

The proceedings for 1872-3, include the semi-centennial exercises, May 22 report of the committee in defence of Gen. John Sullivan.

New Hampshire register, farmers' almanac, and business 1881. Astronomical calculations by H. Doton. Claremont, N [1]

New Haven. *Board of Education.* Annual report, 1880. New 8°. [3]

— *See* **Atwater,** E. E.

New Haven and Northampton Railroad Company. 44th a 1880. New Haven, 1881. 8°. [3]

New Jersey. *Board of Health.* 4th annual report, 1880. C 8°. [2]

— *Court of Chancery, Prerogative Court, etc.* *See* **Stewart,** J. [1880-81], v. 5-6.

— *Geological Survey.* Annual report of the State Geologist, [1879-80. Trenton, 1879-80. 2 v. 8°. Maps. [3]

— - Catalogue of the centennial exhibit [at the Internationa Philadelphia, 1876]. New Brunswick, [1876]. 8°. 83 (1) p. [

— *Legislature.* Acts, 27th General Assembly, 1802; 45th-46th Ge bly, 1820-21; 104th-105th Legislature, and 36th-37th under stitution, [1880-81]. Trenton, Morristown, 1802-81. 5 v. 8°.

— - Archives of the state of New Jersey. 1st series. Vol. 1. [N 8°. [2]

Contents.

Vol. 1. **Whitehead,** W. A., *editor.* Documents relating to the colonia Jersey. Vol. 1. 1631-87.

— - Documents, 104th Legislature, and 36th under the new [1880]. Newark, 1880. 2 v. 8°. [2]

— - Journal of the 36th Senate, being the 104th session of the [1880]. Burlington, 1880. 8°. [2]

— - Minutes of votes and proceedings, 104th General Assembly, City, 1880. 8°. [2]

— *State Board of Education and State Superintendent of Public Ins* port, 1880. Camden, 1881. 8°. [2]

— *State Normal School.* 1st-2d, 4th-5th, 7th-9th annual report panying documents of the board of trustees, 1855-57, 59-60, 6 Jersey City, Trenton, 1856-64. 7 v. 8°. [2]

— - The induction of J. S. Hart as principal of the model sch 1862. Trenton, 1862. 8°. 48 p. [2]

— - 1st triennial register and circular of the School, including preparatory school, 1858. Trenton, 1858. 8°. [2]

— *Superintendent of Public Schools.* Annual report, 1864. Jerse 8°. [2]

— *Supreme Court.* *See* **Vroom,** G. D. W. Reports, [1880], v. 13.

New Jersey Historical Society. Proceedings. Vol. 8-10. 18 ark, 1859-67. 3 v. 8°. [2]

— *Same.* 2d series. Vol. 1-6. 1867-81. Newark, 1869-81. 6 v.

New London, *Conn.* *See* **Groton Heights Centennial Comm**

New Mexico. *Bureau of Immigration.* New Mexico. Conden tion of facts concerning the territory, in answer to numero *n.p., n.d.* 8°. 8 p. [3]

w Mexico. *Bureau of Immigration, continued.*

- **Report** of the Commissioner of Immigration for Colfax County. By **H. Whigham.** Santa Fé, 1880. 8°. 13 p. [3]

Governor. Mensage del Gov. Samuel B. Axtell a la Asamblea Legislativa, sesion 22a. Santa Fé, [1875]. 8°. 16 p. [3]

- **Message** of Governor Lewis Wallace, to the Legislative Assembly, 24th session, 1880. Santa Fé, 1880. 8°. 8 p. [3]

Legislative Assembly. The general laws of New Mexico; including all the unrepealed general laws, from the promulgation of the "Kearney code" in 1846, to the end of the legislative session of 1880. Compiled under the direction of Hon. L. B. Prince. Albany, 1880. 8°. 603 p. [1]

- **Laws** of the territory, 3d Legislative Assembly, 1853/4, 1858/9–63/4, 65/6–66/7. [*In Spanish and English.*] Santa Fé, Albuquerque, 1854–67. 9 v. 8°. [1]

- **Leyes** del territorio, 1868/9, 71/2; Actos, sesion 21a–22a, 1873/4, 75/6. Santa Fé, 1869–[76]. 4 v. 8°. [1]

ew Mexico, Historical Society of. *See* **Historical Society,** *etc.*

ew Plutarch. N.Y., 1880–81. 2 v. 16°.

Namely.

Beesly, A. H. Sir John Franklin.
Palmer, E. H. The Caliph Haroun Alraschid.

ew Sweden, *Me.* Celebration of the decennial anniversary of the founding of New Sweden, July 23, 1880. [With the historical oration by W. W. Thomas, Jr. Portland], 1881. 8°. 87 p. [1]

ew York, *City. Board of Commissioners of the Central Park.* 10th, 12th–13th annual report, 1866, 68–69. N.Y., 1867–70. 3 v. 8°. Maps, and illus. [3]

- *Board of Commissioners of the Department of Public Parks.* 3d general report for the period of twenty months, May, 1872–Dec., 1873. N.Y., 1875. 8°. Maps. [3]

- *Board of Education of the City of New York.* Documents, 1861–63, 65–68. N.Y., 1862–69. 7 v. 8°. [3]

Afterwards contained in the Journal of the Board.

- - Journal, 1861–62, 64–68, 71–80. N.Y., 1861–80. 17 v. 8°. [3]

Neither journals nor documents were printed before 1853.

- *Board of Education of the City and County of New York.* 20th–23d, 25th–27th, 30th, 32d, 39th annual report. N.Y., 1862–81. 10 v. 8°. [3]

- - Directory, 1881. N.Y., 1881. 32°. [3]

- - Manual, 1881. N.Y., 1881. 18°. [3]

- *Common Council.* The city record. Official journal. Vol. 7–8. 1879–80. N.Y., 1879–80. 8 v. f°. [3]

- - Ordinances of the mayor, aldermen and commonalty, revised 1859, by D. T. Valentine. N.Y., 1859. 8°. xvi, 9–611 p. [3]

- *Corporation.* Manual of the corporation, 1868–69. By J. Shannon. N.Y., [1868–69]. 2 v. 8°. Portraits, maps and illus. [1]

- *Custom House.* *See* **United States.** *Department of the Treasury.*

- *Superior Court.* *See* **Jones,** S., *and* **Spencer,** J. C. Reports, v. 45–46.

- *Directories.* New-York directory, containing a valuable and well calculated almanack, tables of different coins, *etc.* By D. Franks. N.Y., 1786 [*reprinted* 1874]. 8°. 82 p. [1]

- - *See* **Trow's** New York city directory; — **Wilson's** business directory.

- *Finance, Geology, History, etc.* *See* **Cornwallis,** K.; — **Cozzens,** I., *Jr.*; — **Davis,** A.; — **Dawson,** H. B.; — **Francis,** J. W.; — **Gerard,** J. W.; — **Lamb,** *Mrs.* M. J.; — **Osgood,** S.

- **Children's Aid Society.** 27th–28th annual report, 1879–80. N.Y., 1879–80. 8°. [3]

- **General Society of Mechanics and Tradesmen.** 94th–95th annual report, 1880–81. N.Y., 1880–81. 8°. [3]

New York, *City, continued.*

— **Mercantile Library Association.** 59th-60th annual r
N.Y., 1880-81. 8°. [3]

— **Young Men's Christian Association.** 27th-28th annual
1880-81. 8°. [3]

New York, *City and County.* A copy of the poll list of the ele
sentatives for the city and county, 1761, 68-69, alphabetical
by S. W. Phœnix. N.Y., 1880.] 3 v. sm. 4°. [3, *S. Whitn*
York.]

— *Board of Education.* *See* **New York,** *City.*

New York, *State. Commissioners of Emigration.* Annual r
Albany, 1879-81. 8°. [3]

— *Constitution.* *See* **New York Historical Society.**

— *Court of Appeals.* *See* **Howard,** N., *Jr.* Cases, [1847-48]; —
Reports, 1879-80. v. 33-37.

— *Courts.* *See* **Abbott,** A. New cases, v. 8; — **Andrews,** R. E.

— *Legislature* Code of civil procedure. *See* **Laws,** 103d sessio

— - Documents of the Assembly, 103d session, 1880. Vol. 1-2
bany, 1880. 7 v. 8°. [2]

— - Documents of the Senate, 103d session, 1880. Vol. 1. Al
[2]

— - Journal of the Assembly, 103d session, 1880. Albany, 188

— - Journal of the Senate, 103d session, 1880. Albany, 1880. 8

— - Laws, 1st meeting, 7th session, 1784; 1st meeting, 8th ses
meeting, 8th session, [1785]; 9th-10th session, [1786-87]; 50t
N.Y., 1784-87. In 3 v. f°. [1]

— - Laws, 103d session, 1880. Albany, 1880. 2 v. 8°. [2]

Vol. 2 contains chapters 14 to 22 of the Code of civil procedure, and cha
the same.

— - Private laws, 33d session, 1810. Albany, 1810. 8°. [2]

— - Report of the committee on public education relative to
survey and natural history of the state. *n.t.p.* [Albany, 1
[3]

— - Revised statutes as altered by the Legislature, [1836]. By
Butler, J. C. Spencer. [2d ed.] Albany, 1836. 3v. 8°. [1

— - The special and local laws affecting public interests in th
York, in force Jan. 1, 1880. Compiled by G. Bliss, P. B.
Whitney. Albany, 1880. 2 v. 8°. Map. [3]

— *Regents of the University.* 54th-55th, 57th, 59th annual re
1841-46. 4 v. 8°. [2]

— - 3d annual report on the condition of the State Cabinet o
tory, revised ed.; 13th annual report [appendix F]; 14th
[appendix C, and continuation of appendix C]; 15th annu
bany, 1850-79. 7 v. and pm. 8°. [3]

Appendix F, 13th annual report, and Appendix C, 14th annual report, c
tions to palæontology, 1858-60, by J. Hall"; The continuation of Appen
contains "Descriptions of new species of fossils from the upper Helderb
Chemung groups."

The reports not in this list or on the printed catalogue are contained
documents of the state of New York.

— *Secretary of State.* Manual for the use of the Legislature,
1881. 16°. [1]

— *State Commissioner to the Paris Exposition of* 1867. 2d annu
bany, 1868. 8°. Plates. [3]

— *State Museum of Natural History.* Preliminary notice of the l
ate shells of the upper Helderberg, Hamilton and Chemun
others from the Waverly sandstones. Part 2. *n.t.p.* [Alb
97 p. [3]

— *Superintendent of Common Schools.* Report, 1834. Albany, 1

ew York, *State, continued.*

—*Superintendent of Public Instruction.* 13th-15th, 26th-27th annual report. Albany, 1867-81. 5 v. 8°. [2]

The missing reports are contained in the Assembly documents of New York.

—*Supreme Court.* *See* **Hun,** M. T. Reports, 1880-81, v. 28-30.

—*Supreme Court and Court of Appeals.* *See* **Stover,** R. M. Howard's Practice reports, [1880], v. 59-60.

—*Surrogates' Courts.* *See* **Redfield,** A. A. Reports, [1878-81], v. 4.

—*Directories.* New York state business directory, 1874. By Sampson, Davenport & Co. *n.p.*, [1874]. 8°. Map. [1]

—*History, etc.* *See* **Denton,** D.;—**De Peyster,** F.;—**Jogues,** I.;—**Massachusetts.** *General Court.*

ew York Chamber of Commerce. 23d annual report of the corporation, 1880-81. N.Y., 1881. 8°. [3]

—Report on emigration by a special committee, Jan. 5, 1865, with appendix, containing documents and tabular statements. N.Y., 1865. 8°. 32 p. [3]

New York] evening post. July, 1880-June, 1881. Bost., 1880-81. 2 v. f°. [1]

ew York Historical Society. Annual report of the committee on the fine arts, Jan. 1862. [N.Y., 1862.] 8°. 8 p. [3]

—The charter and by-laws. Revised Jan., 1858. With a list of members. N.Y., 1862. 8°. 73, (1) p. [3]

—*Same.* With the amendments and a list of resident members. N.Y., 1875. 8°. 39 p. [3]

—Commemoration of the battle of Harlem Plains on its 100th anniversary. Oration by J. Jay, [with letters from Washington and others relating to the battle]. N.Y., 1876. 8°. 98 p. Map. [3]

—Commemoration of the conquest of New Netherland, on its 200th anniversary. [Including the oration by J. R. Brodhead.]. N.Y., 1864. l. 8°. 87 p. Map and portraits. [1]

—Commemoration of the 100th anniversary of the adoption of the constitution of New York, April 20, 1777. Address by C. O'Conor, May 8, 1877. N.Y., 1877. 8°. 40 p. [3]

—The De Peyster collection. Catalogue of books in the library of the Society, presented by J. W. De Peyster. Part 1. Jan. 1868. N.Y., 1868. 8°. 24 p. [3]

—Proceedings at the dedication of the library, Nov. 3, 1857. N.Y., 1857. 8°. 27 p. [3]

New York, New Haven and Hartford Railroad Co. Report of the board of directors to the stockholders, 1872-73; 8th annual report, 1880. N.Y., 1872-80. 8°. [4]

The report for 1872 is the report of the New York and New Haven Railroad Co.

New York Produce Exchange. Annual address of the president, with accompanying documents, 1881. [N.Y., 1881.] 8°. 16, (2) p. [3]

Newark, *N.J.* *Board of Education.* 1st-15th, 17th-22d, 24th annual report, including the regulations relating to public schools, *etc.*, 1857-71, 73-78, 80. Newark, 1858-81. 8°. [2]

—*City Superintendent of Public Schools.* Annual report, 1855-56. Newark, 1856-57. 8°. [2]

Newburgh, *N.Y.* *See* **Ruttenber,** E. M.

Newburyport. *City Council.* Ordinances of the city, with the city charter and amendments, *etc.* Newburyport, 1880. 8°. [3]

—*Public Library.* 23d-25th annual report of the directors. Newburyport, 1879-81. 8°. [3]

—**First Presbyterian Church.** *See* **Vermilye,** A. G.

Newburyport directory, 1880-81. No. 19. By Sampson, Davenport & Co. Newburyport, 1880. 8°. [1]

Newcomb, John Bearse. Genealogical memoir of the Newc
1635-1874. Elgin, Ill., 1874. 8°. (4), 600 p. Portraits. [1]

Newcomb family. *See* **Newcomb,** J. B.

Newhall, James Robinson. Proceedings in Lynn, Mass., June
250th anniversary of the settlement. Embracing the orati
Tracy, the addresses, correspondence, etc., with an introduc
and a second part. Lynn, 1880. 8°. [3, *Chas. E. Parsons, Lyn*

Newport, *R.I. School Committee and Superintendent of Public*
Annual report, 1865/6-67/8, 69/70-70/71, 72/3-80/81. Newpo
8°. [2]

The reports of the Superintendent of Public Schools, 1872/3-80/81, are num
the 16th.

— *See* **Bigelow,** T.; — **Brooks,** C. T.; — **Channing,** G. G.; — D
Higginson, T. W.; — **Mason,** G. C.; — **Sheffield,** W. P.

Newport mercury. Oct. 27, 1781. [Contains the first news of th
of Lord Cornwallis at Yorktown.] Bost., *reprinted* 1881. f°.

Newspapers. *See* **Goddard,** D. A.

Newton, *Mass.* Report of receipts and expenditures, March 1, 1
1835; March 1, 1848-March 1, 1849; March 1851-Feb. 1857; for t
ing Feb. 1859-Feb. 1860. Newton, Bost., 1835-60. 16° and
Hagar, Newton.]

Called "Auditors' report of receipts and expenditures," 1834-35; "Account
expenditures," 1851-57, "Annual report," *etc.*, 1859-60.

— *School Committee.* Rules and regulations for the public schools
Newton, 1874. 8°. 37 p. [3]

— *See* **Smith,** S. F.

Newton directory, [1881]. Added, a business directory of W
Watertown. No. 7. Worcester, 1881. 8°. Map. [1]

Nez Perce Indians. *See* **Joseph,** *Chief of the Nez Perces.*

Nichol, John Byron. N.Y., 1880. 12°. (**Morley,** J., *ed.* English
ters.) [1]

Nicholas, *of Lynn.* *See* **De Costa,** B. F.

Nile. *See* **Beke,** C. T.

Nineteenth century. Ed. by J. Knowles. Vol. 1-8. Lond., [18
8°. [1]

Nordenskiöld, Adolf Erik. Arctic voyages, 1858-79. With illus
Lond., 1879. 8°. [1]

An appendix contains the official report on the hygiene and care of the
Swedish polar expedition, 1872-3, by A. Envall.

Nordhoff, Charles. The cotton states in the spring and sum
N.Y., 1876. 8° [1]

Norfolk County, *Mass.* Receipts and expenditures of the cou
72/73, 77/78, 78/79. Dedham, 1872-80. 8°. [3]

Norris, A. Wilson. Pennsylvania reports, 1879. *See* **Pennsyl**
preme Court. Reports, v. 89-91.

Norris, John A. Telegraphic determination of longitudes on th
of South America, 1878-79. *See* **United States.** *Bureau of N*

Norris, P. W. Report. *See* **United States.** *Superintendent o*
stone National Park.

North American review. Vol. 131. N.Y., 1880. 8°. [1]

North Andover directory. *See* **Lawrence.**

North Brookfield, *Mass.* Valuation and taxes for the year
Brookfield, 1876. 8°. 54 p. [2]

— **Congregational Church and Society.** *See* **Snell,** T.

North Carolina. *General Assembly.* Laws and resolutions, 188
1881. 8°. [2]

Contains also a register of state officers, members of the General Assembly,
and state constitution.

th Carolina, *continued.*

eological Survey. The minerals and mineral localities of North Carolina, being chapter 1 of the second volume of the geology of North Carolina, 1881. Raleigh, 1881. 8°. [2]

Contents.

Part 1. **Genth,** F. A., *and* **Kerr,** W. C. Mineralogy.

See **Emmons,** E.

perintendent of Public Instruction. Annual report, 1880. Raleigh, 1881. 8°. [2]

upreme Court. North Carolina reports, v. 83-84. 1880-81. By T. S. Kenan. Vol. 8-9. Raleigh, 1880-81. 2 v. 8°. [2]

ee **Kerr,** W. C.

th-West Territories. Ordinances of the North-West Territories, 1878-79. Battleford, 1879. 8°. [2]

roclamations relating to electoral districts and elections in the North-West Territories. Battleford, [1880]. 8°. 19 p. [2]

thampton directory and historical register, [1875-6]. Northampton, 1875-6. 8°. Map and illus. [1]

thborough, *Mass.* Reports and statistics for the year 1851-2. Worcester, [1852]. 8°. [2]

aluation and taxes for 1880. Marlboro', 1880. 8°. [3]

ee **Allen,** J.

irst Congregational Church and Society. *See* **Allen,** J.

thend, Charles, *editor.* Elihu Burritt; a memorial volume containing a sketch of his life and labors, with selections from his writings and lectures, *etc.* N.Y., [*cop.* 1879]. 12°. Portrait and illus. [1]

throp, Birdsey Grant. Examination of teachers. New Haven, 1880. 8°. 46 p. [3, *Author.*]

From the report of the Connecticut Board of Education, 1880.

igh schools. Syracuse, 1880. 8°. 26 p. [3, *Author.*]

ural improvement. New Haven, 1880. 8°. 52 p. [3, *Author.*]

ree planting, forestry in Europe, and other papers. New Haven, 1880. 8°. [3, *Author.*]

thrup, A. Judd. 'Sconset cottage life: a summer on Nantucket Island. N.Y., 1881. 16°. [1]

thwest territory of the United States. *See* **Blanchard,** R.

ton, Andrews. Review of Prof. Frisbie's inaugural address. [*Anon.*] Camb., 1823. 8°. 35 p. [3, *S. P. Mayberry, Boston.*]

First published in the North American review for January, 1818.

ton, Charles Eliot. Historical studies of church-building in the middle ages. Venice, Siena, Florence. N.Y., 1880. 8°. [1]

rway. *See* **Vincent,** F., *Jr.*

rwood directory. *See* **Hyde Park.**

tes on "Southern wealth and Northern profits," [by T. P. Kettell. *Anon.*]. Phila., 1861. 8°. 31 p. [1]

tt, Charles C., *and* **Hopkins,** Archibald. Cases decided in the Court of Claims, 1877-79, and decisions of the Supreme Court in appealed cases, 1877-80. Vol. 13-15. Wash., 1879-80. 3 v. 8°. [1]

Vol. 15 contains an analytical table of v. 11-15.

va Scotia. *General Assembly.* Statutes, 2d session, 27th General Assembly, [1880]. Halifax, 1880. 8°. [2]

Library Commissioners and Librarian. Annual report, 1880. Halifax, 1881. 8°. [2]

Superintendent of Education. Annual report on the common, academic, normal and model schools, for the year ending Oct. 31, 1879. Halifax, 1880. 8°. [2]

See **Canada.** *Parliament.*

Nova Scotia Historical Society. Report and collections, 187
Halifax, 1879. 8°. [3]

Contents.

Vol. 1. Introductory. — Objects of collection. — List of officers, *etc.* — By-
tions, *etc.* — Annual report for 1878. — Act of incorporation. — **Archibald**, A.
address. — **Hill**, G. W. History of St. Paul's Church. — **Nicholson**, F. Jour
ture of Annapolis, 1710. — Account of **Nova Scotia** in 1743. — **Trials** for treas
Thomas, J. Diary of the expedition of 1755 against the Acadians.

Nuttall Ornithological Club. Bulletin. Vol. 5. Camb., 1880.

Oakham, *Mass.* Report of the selectmen of the receipts and expe
the town for the year ending Feb. 26, 1861; Annual report o
officers, 1862, 64, 66. Worcester, [1861]-66. 8°. [2]

— Valuation and taxes, 1875. Worcester, 1876. 8°. 8 p. [2]

Oakland, *Cal. Board of Education.* Rules and regulations and
study of the public schools, 1880. Oakland, 1880. 8°. [2]

Obelisks. *See* **Weisse**, J. A.

Oberlin, Jean Frédéric. Memoir of Oberlin. Reprinted from the
[*Anon.*] Bost., 1860. 8°. (14) p. [3, *S. P. Mayberry, Boston.*]

Object lessons. *See* **Park**, A.; — **Walker**, J.

Ocean currents. *See* **Taber**, C. A. M.

Ocean telegraphy. *See* **Field**, C. W.

O'Conor, Charles. Address, 100th anniversary of the adoption of
tution of New York, May 8, 1877. *See* **New York Historical S**

Ogdensburg and Lake Champlain Railroad Company. Re
committee, appointed July 16, 1878, to investigate the affairs
densburg and Lake Champlain Railroad Company. Bost., 187
[4]

— Report of the condition of the Company, 1879. Bost., 1879. 8°.

Ohio. *Adjutant-General.* Annual report, 1879. Columbus, 1880.

— *Commissioner of Railroads and Telegraphs.* 13th annual report, 18
bus, 1880. 8°. [2]

— *General Assembly.* Acts of a general nature, enacted, revised a
to be re-printed, 1st session, 18th General Assembly, 1819-[20
Columbus, 1820. 2 v. in 1. 8°. [1]

The "Acts ordered to be re-printed," have a separate title-page, and are sep
and indexed.

— - Acts of a general nature, 1st session, 24th — 1st session, 26th
sembly, 1825-27. Vol. 24-26. Columbus, 1826-28. 3 v. 8°. [2]

— - Executive documents. Annual reports for 1879, made to the 6
Assembly, 1880. Columbus, 1880. 3 v. 8°. [2]

— - General and local laws and joint resolutions, 64th General As
session, 1880. Vol. 77. Columbus, 1880. 8°. [2]

— - Journal of the House of Representatives, 64th General Asse
Vol. 76. Columbus, 1880. 8°. [2]

— - Journal of the Senate, 64th General Assembly, 1880. Vol. 76.
1880. 8. [2]

— *Institution for the Education of the Blind.* 43d-44th annual repo
Columbus, 1880-81. 8°. [2]

— *Secretary of State.* Annual report, [including the statistical re
Columbus, 1880. 8°. [2]

— *State Board of Agriculture.* 34th annual report, with an abstract
ceedings of the county agricultural societies, 1879. Columbu
[2]

Appendixes contain the 13th annual report of the State Horticultural Socie
annual report of the State Fish Commission.

— *State Commissioner of Common Schools.* 27th annual report, 1880.
1881. 8°. [2]

— *State Fish Commission.* 1st-5th annual report, 1875-80. Columb
8°. [3]

io, *continued.*

Supreme Court. Reports of cases, [1878–80]. By E. L. De Witt. New series. Vol. 35. Cincin., 1880. 8°. [2]

See **Andrews,** I. W.; — **Railroads.**

io Agricultural and Mechanical College. 6th–7th annual report, 1876–77. Columbus, 1876–78. 8°. [3]

The earlier reports are contained in the Ohio executive documents.

io Indians. *See* **Smith,** W.

io Valley historical series. No. 1. Cincin., 1868. 1. 8°.

Contents.

No. 1. **Smith,** W. Historical account of Bouquet's expedition against the Ohio Indians, in 1764. With preface by F. Parkman.

d Colony Historical Society. Collections. No. 2. Papers read before the Society, 1879–80. Taunton, 1880. 8°. [3, *Charles A. Reed, Taunton.*]

Contents.

No. 2. Prefatory note. — Officers. — **Reed,** C. A. The province of Massachusetts Bay in the 17th century, with a sketch of Capt. Thomas Coram. — **Williams,** H. Was Elizabeth Pool the first purchaser of the territory, and foundress of Taunton?

d Colony Railroad Company. 17th annual report, 1880. Bost., 1880. 8°. [3]

d Settlers' Society, *Racine County, Wis.* Official record of the Society, with the historical address of C. E. Dyer, at Burlington, Feb. 22, 1871. Racine, 1871. 8°. 84 p. [3, *Charles E. Dyer, Racine, Wis.*]

iver, Andrew. *See* **Massachusetts.** *Council.*

iver, Henry Kemble. [A collection of newspaper cuttings relating to the labor question, *etc.* Collected by H. K. Oliver.] [3, *H. K. Oliver, Boston.*]

See **Massachusetts.** *Deputy State Constable.*

ney, Peter B. Special and local laws affecting public interests in the city of New York, 1880. *See* **New York.** *Legislature.*

Malley, Edward Loughlin, *and* **Hardcastle,** Henry. Reports of the decisions of the judges for the trial of election petitions in England and Ireland, [1880]. Vol. 3. Lond., 1881. 8°. [1]

iderdonk, Henry, *Jr.* The annals of Hempstead, [N.Y.], 1643–1832; also, the rise and growth of the Society of Friends on Long Island and in New York, 1657–1826. Hempstead, 1878. 8°. [3, *Author.*]

itario. *Legislature.* Journals of the Legislative Assembly, 2d session, 4th Legislature, 1881. Vol. 14. [Toronto, 1881.] 8°. [2]

— The liquor license act; added, the amending acts of 1878 and 1881. Toronto, 1881. 8°. 58 p. [2]

— Sessional papers. Vol. 13. Part 1–4. 2d session, 4th Legislature, 1881. [Toronto, 1881.] 4 v. 8°. [2]

— Statutes of the province, 2d session, 4th Legislature, 1881. Toronto, 1881. 8°. [2]

Library of Parliament. Catalogue, 1881. Toronto, 1881. 8°. [2]

Minister of Education. Report on the public (including separate) and high schools, also on the normal and model schools, 1879. Toronto, 1881. 8°. [2]

Provincial Secretary. Report on the working of the tavern and shop licenses acts, 1880. Toronto, 1881. 8°. [2]

Registrar-General. Report relating to the registration of births, marriages and deaths, 1879. Toronto, 1881. 8°. [2]

pinions and facts from eminent physicians, chemists, and others, in favor of ale and beer as light, wholesome beverages. Bost., 1872. 8°. 19 p. [3, *H. H. Rueter, Boston.*]

ppler, Adolph. Three lectures on education. With an additional lecture on recent educational legislation in England and another lecture entitled, Some of Goethe's educational views. 4th ed., enlarged. Lond., 1875. 16° [1]

Orange culture. *See* **Moore, T. W.**

Orcutt, Samuel, *and* **Beardsley,** Ambrose. The history of the
Derby, Conn., 1642–1880. With biographies and genealogies.
1880. l. 8°. xcvii, 844 p. Portraits and illus. [1]

Orderly book of the siege of Yorktown, Sept. 26–Nov. 2, 1781.
4°. 66 p. (**Revolutionary** series, no. 1.) [1]

Ordronaux, John. In re William Winter. The value of expe
h.t.p. [1870.] 8°. 34 p. [1]
From the American journal of insanity for July, 1870.

Ordway, Albert. General index of the journals of Congress,
gress. *See* **United States.** *Congress.*

Oregon. *Legislative Assembly.* Journal of the House, 10th re
1878. Salem, 1878. 8°. [2]

— - Journal of the Senate, 10th regular session, 1878. Salem, 18

— - Laws of the State, 1st extra session, 1859. Salem, Or., 1859.

— - Laws and resolutions and memorials, 11th regular session,
1880. 8°. [2]

— - [Messages and documents, 10th regular session, 1878.] Sa
[2]

— - Statutes of a general nature passed at the 2d session, 1850-
City, 1851. 8°. [1]

— *Supreme Court.* *See* **Bellinger,** C. B. Reports of cases, 1879-

Oregon State Medical Society. Proceedings, 8th annual
Vol. 8. Portland, 1881. 8°. [3]

Orford, *N.H.* Centennial celebration of the town, containin
[by G. Marston], poems and speeches, Sept. 7, 1865. [With
sketches. Manchester, N. H., 1865.] 8°. [1]

Oriskany, Battle of. *See* **Roberts, E. H.**

Ormond, J. J. Reports. *See* **Alabama.** *Supreme Court.* Re

Orono, *Me.* 1774. 1874. Centennial celebration, and dedica
hall, March 3, 1874. [With the address by I. Washburn, J
1874. 8°. Illus. [1]

Orr, Gustavus J. The education of the negro, its rise, progres
status: address before the National Educational Associat
qua, N.Y. Atlanta, Ga., 1880. 8°. 15 p. [3]

Osgood, Samuel. New York in the 19th century. Discourse b
York Historical Society on its 62d anniversary, Nov. 20, 186
8°. [3]

— Thomas Crawford and art in America. Address before the N
torical Society, upon the reception of Crawford's statue of th
sented by F. De Peyster, April 6, 1875. N.Y., 1875. 8°. 40 p

Oswego, *N.Y.* *Board of Education.* 5th-6th, 8th-9th, 13th-1
annual report. Oswego, 1858–77. 8°. [2]

Otis, Harrison Gray. An address to the city council, on the r
municipal government, to the old state house. Bost., 1830.

Otto, William T. United States reports, Supreme Court
Cases in the Supreme Court, 1879-80. Vol. 11-13. Bost., 18
[1]

Our commercial and political relations with China, by an Ame
in China. [*Anon.* Wash., 1855.] 8°. 8 p. [1]

Owen, David Dale. 2d report of a geological reconnoissance
See **Arkansas.** *Geological Survey.*

Owen, Howard. Biographical sketches of the members of th
House of Representatives of Maine, 1876–81. Vol. 5-10. A
81]. l. 8°. [1]

Oxford, *Mass.* Valuation list, 1880–81. Webster, Worcester,
[3]

Paine, Henry D. *and* Albert W. Paine family records. Vol. 2, no. 1-3. N.Y. 1881. 8°. [3, *Author.*]

Paine, Robert Treat, *Jr.* Associated charities. Immediate duty of every city to organize its charities. Address at the Bureau of Charities, Brooklyn, March 31, 1881. [Bost., 1881.] 8°. 20 p. [3, *Author.*]

— Coöperative savings banks, or building associations. Bost., 1880. 8°. 12 p. [3, *Author.*]

Reprinted from the Boston daily advertiser of Dec. 3, 1880.

Palæontology. *See* **Barrande, J.,** *and others*; — **Hall, J.**

Palfrey, John Gorham. A discourse at Barnstable, 3d Sept., 1839, at the celebration of the 2d centennial anniversary of the settlement of Cape Cod. Bost., 1840. 8°. 50 p. [1]

Palgrave, Robert Harry Inglis. An analysis of the transactions of the Bank of England, 1844-72. Lond., 1874. 8°. 42 p. [1]

Palmer, Edward Henry. The Caliph Haroun Alraschid and Saracen civilization. N.Y., 1881. 16°. (New Plutarch.) [1]

Panizzi, *Sir* Antonio (Genesio Maria). *See* **Fagan, L.**

Parent-Duchâtelet, Alexandre Jean Baptiste. De la prostitution dans la ville de Paris, précédé d'une notice sur la vie et les ouvrages de l'auteur, par F. Leuret. 2e éd., corrigée. Paris, 1837. 2 v. 8°. Portrait and maps. [1]

Paris. *See* **Parent-Duchâtelet, A. J. B.**

— **Americans of Paris.** Banquet in honor of Major-Gen. John A. Dix, June 1, 1869. [Containing speeches by A. H. Bullock, and others.] Paris, 1869. 8°. 46 p. [3, *Hon. A. H. Bullock, Worcester.*]

— **Exposition Universelle,** 1867. *See* **New York,** *State. Commissioner to the Paris Exposition of* 1867; — **United States.** *Department of State.*

— **Exposition Universelle,** 1878. Catalogue of the British Colonies. Lond., [1878]. 8°. [3]

— - Handbook to the British Indian section. By G. C. M. Birdwood. Lond., [1878]. 8°. Plates. [2]

— - Official catalogue of the British section. 2d ed. Lond., 1878. 2 v. 8°. [2]

— - *See* **United States.** *Commissioners to the Paris Universal Exposition.*

Park, A. The teacher's hand-book of object lessons. New ed., illus. [Lond., 1879.] 16°. [1]

Parker, Francis J. A study of municipal government in Massachusetts. Bost., 1881. 8°. 24 p. [3, *Author.*]

Parker, Joel. Constitutional law and unconstitutional divinity. Letters to Rev. H. M. Dexter and to Rev. L. Bacon. Camb., 1863. 8°. 63 p. [1]

— - The war powers of Congress, and of the president. An address before the national club of Salem, March 13, 1863. Camb., 1863. 8°. 60 p. [1]

— *See* **Hale, G. S.**

Parkhurst, Charles H. Incidents of cavalry service in Louisiana. Providence, 1879. sm. 4°. 25 p. (**Rhode Island Soldiers and Sailors Hist. Soc.** Personal narratives, no. 7.)

Parsons, Charles W. Forests: their influence on climate and soil: a lecture before the Princeton Farmers' Club, Aug. 24, 1877. Providence, 1878. 8°. 19 p. [3, *Author.*]

— The Medical School formerly existing in Brown University, its professors and graduates. Providence, 1881. sm. 4°. 59 p. (**Rhode Island** hist. tracts, no. 12.) [1]

Parsons, Emily Elizabeth. *See* **Parsons, T.**

Parsons, Theophilus. Memoir of Emily Elizabeth Parsons. Bost., 1880. 16°. [1]

Parton, James. Life of Voltaire. Bost., 1881. 2 v. 8°. Portraits. [1]

Pascal, *the younger, pseud.* Cases of conscience; or, Lessons in morals for the use of the laity. 4th ed. With a prefatory letter to W. E. Gladstone, and a reply to the Church of Rome's defence in the "Dublin review." Lond., 1852. 8°. (**Pm.,** v. 118.) [1]

Patagonia. *See* **Cunningham,** R. O ; — **Dixie,** *Lady* F. C.

Patents. *See* **Fisher,** S. S.

Paterson, James. The liberty of the press, speech, and public w
ing commentaries on the liberty of the subject and the laws
Lond., 1880. sm. 8°. [1]

Paterson, *N.J.* *Board of Education.* Annual report, 1876, 79-81
1876-81. 4 v. 8°. [1]

Patterson, D. Williams. John Stoddard of Wethersfield, Con
descendants. 1642-1872. Succasunna, N.J., 1873. 8°. [1]

Paulus Hook. *See* **Farrier,** G. H.

Payne, Joseph. Lectures on the science and art of education,
lectures and essays. [Including A compendious exposition
system of education.] Ed. by J. F. Payne. With an introdu
H. Quick. Lond., 1880. 8°. Portrait. [1]

Peabody, Andrew Preston. Address, [Cambridge, centennial
July 3, 1875]. *See* **Cambridge.**

— The power of the resurrection. Sermon, King's Chapel, April
the dedication of a monument in memory of the young men o
who fell during the recent war. Bost., 1867. 8°. 22 p. [3, *S.*
Boston.]

— Sermon, March 9, 1862, the Sunday after the funeral of Cornel
Felton, President of Harvard University. Camb., 1862. 8°. 3

Peabody, Elizabeth Palmer. Reminiscences of Wm. Ellery Chan
1880. 16°. [1]

Peabody, *Mass.* **Peabody Institute.** 27th-29th annual report
tees. Peabody, 1879-81. 8°. [2]

Peabody directory. *See* **Danvers.**

Peabody Education Fund. Proceedings of the trustees, 19th m
1881; with the Southern tributes to the services of Dr. Se
address prepared by him for the American Institute of
Camb., 1881. 8°. [3]

Peace Congresses. [Report of proceedings] at Brussels, Sept
general Peace Congress, Paris, Aug., 1849; [5th general Pea
London], July, 1851. Lond., [1848-51]. 8°. (**Pm.,** v. 118.) [1]

The report of the 5th Congress, 1851, is a part of v. 9 of the Advocate of P
Oct., 1851.

Peasant proprietors. *See* **Thornton,** W. T.

Peck, Benjamin D. *See* **Maine.** *Legislature.*

Peck, George B., *Jr.* A recruit before Petersburg. Providen
4°. 74 p. Portrait. (**Rhode Island Soldiers and Sailors**
Personal narratives, no. 8, 2d ser.)

Peck, John Lord. The political economy of democracy. With
of the law of justice between capital and labor. Phila., 1879. 1

Peck, Lucius B. *See* **Washington County bar.**

Peirce, Frederick Clifton. Peirce genealogy, record of the poste
Pers, of Watertown; with notes on the history of other famili
Pierce, Pearce, etc. Worcester, 1880. 8°. Portraits. [1]

Peirce genealogy. *See* **Peirce,** F. C.

Pendleton, John S., *and others.* [Address] to the Whig Party
[Wash., 1848.] 8°. 15 p. [1]

Penn, William. *See* **Armstrong,** E.; — **Mayer,** B.; — **Scott,** L.

Pennsylvania. *Department of Internal Affairs.* Annual report
tary, 1880. Harrisburg, 1881. 4 pts. in 3 v. 8°. [2]

Contents.

Part 1. Land office.
2. Assessments.
3. Industrial statistics. Vol. 7, 1879-80.
4. Railroad, canal, navigation and telegraph companies, 1880.

General Assembly. Laws, 1881. Harrisburg, 1881. 8°. [2]

Pennsylvania, *continued.*

— *2d Geological Survey.* Report, 1874–79. Harrisburg, 1875–80. 44 v. 8°. Maps and illus. [2]

Contents.

A. Lesley, J. P. Historical sketch of geological explorations in Pennsylvania and other states. With the annual reports of the State Geologist, [1874-75].

B. Genth, F. A. Preliminary report on the mineralogy of Pennsylvania, [1874]. With an appendix on the hydrocarbon compounds, by S. P. Sadtler. [With the report of progress, 1875.]

C. Frazer, P., *Jr.* Report of progress in York and Adams Counties, [1874]; illustrated by maps and cross-sections, showing the iron ore belts and individual mines.

C C. Frazer, P., *Jr.* Report of progress in the counties of York, Adams, Cumberland, and Franklin, [1875]. Illustrated by maps, *etc.*, showing the magnetic and micaceous ore belt near the western edge of the mesozoic sandstone and the two azoic systems of the South Mountains.

C C C. Frazer, P., *Jr.* Report of progress in 1877. The geology of Lancaster County. With an atlas.

D. Prime, F., *Jr.* Report of progress on the brown hematite ore ranges of Lehigh County, [1874]. With a description of the mines lying between Emaus, Alburtis and Fogelsville.

D D. Prime, F., *Jr.* Report of progress, 1875-6. The brown hematite deposits of the Siluro-Cambrian limestones of Lehigh County.

E. Hunt, T. S. Special report on the trap dykes and azoic rocks of southeastern Pennsylvania, [1875]. Part I. Historical introduction.

F. Dewees, J. H. Report of progress in the Juniata district on the fossil iron ore beds of middle Pennsylvania, with a report of the Aughwich valley and East Broad Top district by C. A. Ashburner.

G. Report of progress in Bradford and Tioga Counties, [1874-78]. 1. **Sherwood,** A. Limits of the Catskill and Chemung formations. 2. **Platt,** F. Description of the Barclay, Blossburg, Fall Brook, Arnot, Antrim and Gaines coal-fields, and at the Forks of Pine Creek in Potter County. 3. **Fulton,** J. On the coking of bituminous coal.

G G. Report of progress, [1877-79]. Geology of Lycoming and Sullivan Counties. 1. **Sherwood,** A. Field notes. 2. **Platt,** F. Coal basins.

G G G. Report of progress, 1876-9. **Sherwood,** A. Geology of Potter County. — **Platt,** F. Report on the coal fields.

G G G G. Report of progress. Part 1. **Chance,** H. M. The geology of Clinton County. Part 2. Special study of the carboniferous and Devonian strata along the west branch of the Susquehanna River.

H. Platt, F. Report of progress in the Clearfield and Jefferson district of the bituminous coal-fields of western Pennsylvania, [1874].

H H. Platt, F. *and* W. G. Report of progress in the Cambria and Somerset district of the bituminous coal-fields of western Pennsylvania. Part 1. [1875.] Cambria.

H H H. *Same.* Part 2. [1876.] Somerset.

H H H H. Platt, W. G. Report of progress in Indiana County, [1877].

H H H H H. Platt, W. G. Report of progress in Armstrong County, [1879].

I. Carll, J. F. Report of progress in the Venango County district, [1874]. — **Randall,** F. A. Observations on the geology around Warren. — **Lesley,** J. P. Notes on the comparative geology of north-eastern Ohio and north-western Pennsylvania, and western New York.

I I. Carll, J. F. Report of progress, [1876-7]. Oil well records and levels. Published in advance of report of progress, I I I.

I I I. Carll, J. F. Geology of the oil regions of Warren, Venango, Clarion, and Butler Counties, *etc.* [Report of progress, 1875-79.] With an atlas of maps.

J. Wrigley, H. E. Special report on the petroleum of Pennsylvania, its production, transportation, *etc.* [1874.] Added, a map and profile of a line of levels through Butler, Armstrong and Clarion Counties, by D. J. Lucas. And a map and profile of a line of levels along Slippery Rock Creek, by J. P. Lesley.

K. Stevenson, J. J. Report of progress in the Greene and Washington district of the bituminous coal-fields of western Pennsylvania, [1875].

K K. Stevenson, J. J. Report of progress in the Fayette and Westmoreland district of the bituminous coal-fields of western Pennsylvania, [1876]. Part 1. Eastern Allegheny County and Fayette and Westmoreland Counties west from Chestnut Ridge.

K K K. *Same.* [1877.] Part 2. Ligonier Valley.

L. Platt, F. Special report on the coke manufacture of the Youghiogheny River Valley in Fayette and Westmoreland Counties. With geological notes of the coal and iron ore beds, from surveys by C. A. Young. To which are appended, 1. Report on methods of coking, by J. Fulton. 2. Report on the use of natural gas in the iron manufacture, by J. B. Pearse and F. Platt.

M. M'Creath, A. S. Report of progress in the laboratory of the survey at Harrisburg, [1874-5].

M M. M'Creath, A. S. 2d report of progress in the laboratory of the survey at Harrisburg, [1876-8]. Including 1. Classification of coals, by P. Frazer, Jr. 2. Fire-brick tests, by F. Platt. 3. Notes on dolomitic limestones, by J. P. Lesley. 4. Utilization of anthracite slack, by F. Platt. 5 Determination of carbon in iron or steel, by A. S. M'Creath.

N. Allen, C. Report of progress, [1875-7]. Two hundred tables of elevation above tide-level in and around Pennsylvania.

O. Hall, C. E. Catalogue of the Geological Museum, [1874-77]. Part 1. Collections of rock specimens. Nos. 1–4264

O O. *Same.* 1878-80. Part 2. Collections of rock specimens. Nos. 4265–8974, [and] palæontological specimens.

P. Lesquereux, L. Description of the coal flora of the carboniferous formation in Pennsylvania and throughout the United States. [With atlas.]

P P. Fontaine, W. M., *and* **White,** I. C. The Permian or upper carboniferous flora of West Virginia and S. W. Pennsylvania. With plates.

Q. White, I. C. Report of progress in the Beaver River district of the bituminous coal-fields of western Pennsylvania, [1875].

Q Q. White, I. C. Report of progress in 1877. The geology of Lawrence County. Appended, a special report on the correlation of the coal measures in western Pennsylvania and eastern Ohio.

Q Q Q. White, I. C. Report of progress in 1878. The geology of Mercer County.

R. Ashburner, C. A. The geology of McKean County, and its connection with that of Cameron, Elk and Forest. Accompanied by an atlas of maps and sections.

T. Blair atlas.

V. Chance, H. M. Report of progress, [1878]. Part 1. The northern townships of Butler County. Part 2. A special survey made in 1875 along the Beaver and Shenango Rivers in Beaver, Lawrence and Mercer Counties.

V V. Chance, H. M. Report of progress in 1879. The geology of Clarion County.

Pennsylvania, *continued.*

— *Secretary of State.* Charter to Wm. Penn, and laws of the
Pennsylvania, 1682-1700, preceded by Duke of York's laws in
82, with laws relating to the organization of the provincial cou
torical matter. Compiled and ed. by S. George, B. M. Nead, T
Harrisburg, 1879. 8°. 614 p. Portrait and illus. [3]

— - Pennsylvania archives, 2d series. Published under directi
Quay, Secretary. Ed. by J. B. Linn and W. H. Egle. Vol. 1-
risburg, 1874-80. 11 v. in 12. 8°. Maps and portraits. [1]

Contents.

Vol. **1.** Minutes of the Board of War, March 14-Aug. 7, 1777.—Minut
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Papers relating to the Pennsylvania navy, 1775-81.—Papers relating to the I
in Pennsylvania.—Memorandum book of the Committee and Council of S
Col. **Atlee's** Journal of the Battle of Long Island, Aug. 26, 1776.—Journal
Miles, concerning the battle of Long Island, 1776.—List of sick soldiers in Ph
1776.—Papers relating to the war of the revolution, 1775-77.—Plans for the c
raising of the chevaux de frize in the Delaware River, 1775-84.

2. Names of persons for whom marriage licenses were issued in Pennsylva
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3. Names of persons who took the oath of allegiance to Pennsylvania, l
relating to the war of the revolution, 1777.—Memorials against calling a con
Papers relating to the war of the revolution, 1780-81.—Resolves of the con
province, with the instructions to their representatives in Assembly, and an e
stitutional power of Great Britain, 1774.—Proceedings of the convention f
of Pennsylvania, held at Philadelphia, Jan. 23-28, 1775.—Proceedings of th
committees held at Philadelphia, June 18-25, 1776.—Officers of the state of
the revolution and under the constitution of 1776.

4. Papers relating to the Whiskey Insurrection in western Pennsylvani
tive of the journey of Col. T. Proctor to the Indians of the north-west, 1791
ing to the defence of the frontiers, 1790-96.

5. Papers relating to the colonies on the Delaware, 1614-82.

6. Papers relating to the French occupation in western Pennsylvania.—
to the establishment at Presqu' Isle, 1794.

7. Papers relating to provincial affairs in Pennsylvania, 1682-1750.—Paper
boundary dispute between Pennsylvania and Maryland, 1734-60.—The nar
Le Roy and Barbara **Leininger,** three and one half years prisoners amon
Journal of Col. J. **Burd** of the provincial service, 1760;—Journal, Au
1760;—Journal kept at Fort Augusta, 1763.—Papers relating to the Dutch
tlements on the Delaware River.

7. *Appendix.* Charter: Charles II. to Wm. Penn.—Letter from Wm. P
peror of Canada, 1682.

8-9. Record of Pennsylvania marriages, prior to 1810. Vol. 1-2.

10. Pennsylvania in the war of the revolution, battalions and line, 1775-
Linn and W. H. Egle.

12. Muster rolls of the Pennsylvania volunteers in the war of 1812-14, w
papers and documents. Vol. 1.

— *State Commissioners of Fisheries.* Report, 1879-80. Harrisbu
Illus. [2]

— *State Normal School.* Catalogue, 1879-80. Elmira, N.Y., 1880.

— - Catalogue of the officers, instructors and students, 1880-81,
and hand-book of the school, 1881-82. Erie, Pa., 1881. 8°. [3

— *State Penitentiary for the Eastern District of Pennsylvania.* 1s
25th, 28th, 31st-35th, 37th, 39th, 43d-51st annual report of th
Phila., 1831-81. 8°. [3]

Previous to 1858 the penitentiary was called the "Eastern State Peniten
The 50th report has the title "50th or semi-centennial report, 1879."

— *Superintendent of Common Schools.* Report, 1860. Harrisburg,

— *Superintendent of Public Instruction.* Report, 1879-80. Harris
2 v. 8°. [2]

— *Supreme Court.* Pennsylvania state reports. Vol. 89-91. By
ris, state reporter. Vol. 8-10, 1879. Phila., 1880-81. 3 v. 8°.

— - *See* **Wharton, T. I.** Reports, v. 5-6, 1839-41.

— *See* **Nead, B. M.; — Society of the 51st Regiment Pennsy
eran Volunteers.**

Pennsylvania Historical Society. Bulletin. Vol. 1. 1845-47
9-13. Phila., 1848. 8°. [3]

Contents.

Vol. **1,** No. 1. Proceedings.—**Denton,** D. Brief description of New
called New Netherlands. 2. Proceedings.—**McLane,** A. Visit to Was
Proceedings.—**Ettwein,** J. Remarks upon the traditions, &c., of the I
America. 4. Proceedings.—**Morris,** R. Letters to J. Hancock, 1776 6.
Northumberland County, *Pa. Committee of Safety.* Minutes, 1776-

nsylvania Historical Society, *continued.*

ings. — Constitution of the Historical Society. 10 Proceedings. — **Clark,** J., *Jr.* Letters to Gen. Washington, during the occupation of Philadelphia by the British army. 11-12. Proceedings. — **Heckewelder,** J. (G. E.) Memorandum of the names and significations which the "Lenni Lenape," otherwise called "the Delawares," had given to rivers, &c., in Pennsylvania, New Jersey, Maryland and Virginia. 13. Proceedings. — **Holme,** J. True relation of the flourishing state of Pennsylvania.

roceedings on the presentation of the Penn papers, and address of C. Biddle, March 10, 1873. Phila., 1873. 8°. 38 p. [3]

eport of the committee of the Society of their visit to New York, May 20, 1863, at the celebration of the 200th birth-day of William Bradford, read June 8, 1863. By H. G. Jones. Phila., 1863. 8°. 14 p. [3]

Resolutions upon the death of Abraham Lincoln.] *n p.,* [1865]. 8°. 4 p. [3]

eynolds memorial. Addresses before the Society upon the presentation of a portrait of Maj.-Gen. John F. Reynolds [by J. G. Rosengarten, C. Biddle and others], March 8, 1880. Phila., 1880. 8°. 95 p. Portrait. [3]

ransactions. Heraldry as adapted to the United States. [By C. J. Lukens.] *n.p.,* [1868]. 8°. 3 p. [3]

nn papers. *See* **Pennsylvania Historical Society.**

nnsylvania Hospital. A history of the first quarter of the 2d century of the Hospital. By J. F. Meigs. Phila., 1877. 8°. [3]

Report of the board of managers, 1863, 65-77, 80-81, with the accounts of the treasurer and stewards Phila., 1863-81. 8°. [3]

See also **Pennsylvania Hospital for the Insane.**

nnsylvania Hospital for the Insane. Code of rules and regulations for the government of those employed in the care of the patients. By T. S. Kirkbride. 3d ed. Phila., 1878. 12°. 72 p. [3]

Reports, 1861-80. With index for the whole series, 1841-80. By T. S. Kirkbride. Phila., 1862-81. In 4 v. 8°. [3]

nnsylvania Railroad Company. 2d, 4th, 28th, 30th-34th annual report, 1848, 50, 75, 77-81. Phila., 1848 [81] 8° and 4°. [3]

The 31st report contains also the report of the adjourned meeting, 1878.

Rural retreats on the Pennsylvania Railroad between Philadelphia and Downingtown. Phila., 1881. 8°. 18 p. Illus. [3]

Suburban homes on the Pennsylvania Railroad. United railroads of New Jersey division. Phila., 1881. 8°. 35 p. Illus. [3]

Summer excursion routes, 1881. Phila , 1881. 8°. Map and illus. [3]

nny postage. *See* **Hill,** *Sir* R., *and* G. B.

ople's College, *Havana, N.Y.* Public exercises at the laying of the corner stone of the College, Sept. 2, 1858. N.Y., 1858. 8°. 56 p. [3]

rkins Institution and Massachusetts School for the Blind. 49th annual report, 1880. Bost., 1881. 8°. [3]

rley, Ira. *See* **Bell,** C. H.

rry, Arthur Latham. Introduction to political economy. [New ed.] N.Y., 1880. 12°. [1]

rry, William Stevens. A handbook of the general convention of the Protestant Episcopal Church, giving its history and constitution, 1785-1880. N.Y., 1881. 16°. [1]

editor. Papers relating to the history of the Church in Maryland, 1694-1775. *n.p.,* 1878. 4°. [1]

Papers relating to the history of the Church in Massachusetts, 1676-1785. *n.p.,* 1873. 4°. xxv, 720 p. [1]

Papers relating to the history of the Church in Pennsylvania, 1680-1778. *n p.,* 1871. 4°. [1]

Papers relating to the history of the Church in Virginia, 1650-1776. *n.p.,* 1870. 4°. xvii, 585 p. [1]

ersonal liberty. *See* **Pierce,** E. L.

eru. *See* **Markham,** C. R.; — **Reiss,** W., *and* **Stübel, A.**

Peske-ompsk-ut; or, The Falls' fight. Random sketches of th tory of Turners Falls, [Mass. *Anon.*] Turners Falls, 1875. 8

Peter family. *See* **McDonald, F. V.**

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Petersham, *Mass.* Valuation and taxes of the town, 1868, 71, 7 Depot, Athol, Orange, 1869-81. 8°. [3, *Rev. Lyman Clark, Pet*

Peyton, John Howe. *See* **Preston, J. T. L.**

Pharmacy. *See* **American Pharmaceutical Association;— ty Druggists' Association.**

Phelps, E. J. Argument for the Vermont and Canada Railroa case of James R. Langdon & als., *vs.* Vermont & Canada Ra als.] Bost., 1879. 8°. 45 p. [4]

Philadelphia. *Commissioners for the Erection of the Public Bu* new public buildings, on Penn Square. Address of B. H. Bre laying of the corner stone, July 4, 1874; with a description ings, statistics and progress of the work up to Jan. 1, 1880, 1880. 8°. 38 p. Illus. [3]

— - *Same.* Statistics and progress of the work up to Jan. 1, 1 1881. 8°. 8 p. [3]

— *Courts.* *See* **Brown, H. C.** Philadelphia reports, v. 11.

— *Health Officer.* Annual report of births, marriages and dea Phila., 1878-80. 3 v. 8°. [3, *John E. Addicks, Philadelphia, P*

— **Apprentices' Library Company.** Annual report of the ma Phila., 1861. 8°. [3]

— **Bar.** Proceedings of a meeting relative to the death of Charl and a memoir of the deceased by J. Cadwalader, read before cal Society of Pennsylvania. Phila., 1874. 8°. 64 p. [3]

— **Centennial Exhibition,** 1876. Brewers' Industrial Exhibit on the malt liquor question. N.Y., 1876. l. 8°. 40 p. Illus. *Rueter, Boston.*]

— - The centennial of American independence. Phila., 1875. [3]

— - Circulars issued by the Massachusetts Commission, Departn cation and Science, 1876. Bost, [1875]. 8°. [3]

— - International Exhibition, 1876. Transportation. Phila., 18 [3]

— - *See also* **New Jersey.** *Geological Survey;* **— United States** *Commission.*

— **Chamber of Commerce.** Essay on the warehousing system ment credits of the United States. Phila., 1828. 8°. 57 p. [1

— **Librarians.** *See* **Wallace, J. W.**

— **Pennsylvania Museum and School of Industrial Art.** proceedings at the closing exercises of the school, June 4, 18 1881. 8°. 18 p. [3]

Phillips, Wendell. The people coming to power! Speech at t beach gathering, Sept. 13, 1871. Bost., 1871. 8°. 24 p. [3]

— Speech for aid in the preservation of the Old South Meeting-H the committee on federal relations of the Massachusetts Bost., 1878. 8°. 14 p. [3, *S. A. Green, M.D., Boston.*]

Phillips, Willard. Manual of political economy, with particular the United States. Bost., 1828. 8°. [1]

Phillipston, *Mass.* Copy of the valuation and taxes, 1879. G 8°. [3]

Physical education. *See* **Hitchcock, E.**

Physicians. *See* **Ham, J. R.**

Pierce, Ebenezer Weaver. Colonial lists. Civil, military and lists of Plymouth and Rhode Island colonies. With extrac nial laws, 1621-1700. Bost., 1881. 8°. [1]

ierce, Edward Lillie. Address at the dedication of the town house, [Milton], Feb. 17, 1879. *n.p.*, [1879]. 8°. (13) p. [3, *Author.*]

Address before the alumni of Brown University, June 15, 1880. Poem by S. F. Smith. Providence, 1880. 8°. 45 p. [3, *Author.*]

Effect of proscriptive or extreme legislation against foreigners in Massachusetts and New England, on free labor, free states, *etc.*, in the West. Letter, containing statistics in regard to the foreign vote at the presidential election. Bost., 1857. 8°. 15 p. [3, *Author.*]

The freedmen of Port Royal, South Carolina. Official reports. N.Y., 1863. 8°. (23) p. [3, *Author.*]

Pages 301-323 of the Rebellion record, 1862.

The personal liberty laws. Remarks before the committee of the Legislature of Massachusetts, Feb. 1, 1861. Bost., 1861. 8°. 36 p. [3, *Author.*]

Secret suffrage. (Dedham gazette, July 30, 1853.) [3, *Author.*]

A treatise on the law of railroads. Bost., 1881. 8°. lxxxv, (1), 575 p. [1]

The two systems of government proposed for the rebel states. Speech at the town house, Milton, Oct. 31, 1868. Bost., 1868. 8°. 34 p. [3, *Author.*]

ierce, Franklin, *Pres. of the U. S.* Frank Pierce and his abolition allies. [*Anon.* Wash., 1852.] 8°. 16 p. [1]

ilgrim Fathers. *See* **Bartlett,** W. H.

into, Alexandre de Serpa. How I crossed Africa: from the Atlantic to the Indian Ocean. Tr. by A. Elwes. Containing maps and illus. Phila., 1881. 2 v. 8°. [1]

Contents.

Vol. 1. The king's rifle. 2. The Coillard family.

'iscataquis County, *Me.* *See* **Loring,** A.

'itman, Robert C. Alcohol and the church. The substance of an address before the "South Middlesex (Mass.) Conference." N.Y., 1880. 16°. 23 p. [3, *Author.*]

Can the Senate of Massachusetts originate grants of money? Opinion [as] president of the Senate, April 28, 1869. Bost., 1869. 8°. 23 p. [3, *Author.*]

'ittsfield, *Mass.* *Water Commissioners, etc.* Reports of the Water Commissioners, Superintendent of Water Works, Chief Engineer, *etc.*, of the Pittsfield fire district, 1875-76, 78-79. Pittsfield, 1875-79. 8°. [3]

'limsoll, Samuel. Our seamen. An appeal. Lond., 1873. 4°. vi, 89 p. Maps and illus. [1]

'lymouth, *Penn.* *See* **Wright,** H. B.

'lymouth almanac. Containing the names of the citizens, an almanac for 1860, and our town, state, and national governments. By M. Bates. Plymouth, 1860. 16°. [3, *Augustus Russ, Boston.*]

'lymouth Colony. *See* **Pierce,** E. W.

'lymouth County, *Mass.* Annual statement of the receipts and expenditures of the county for the year ending Dec. 31, 1869. *n.t.p.* [1869.] 8°. [3]

General business directory of Plymouth and Barnstable Counties, [1880]. Bost., 1880. 8°. [1]

'olitical economy. *See* **Alden,** J.; — **Annuaire**; — **Bascom,** J.; — **Cossa,** L.; — **Jamieson,** R.; — **Macleod,** H. D.; — **Malthus,** T. R.; — **Martineau,** H.; — **Peck,** J. L.; — **Perry,** A. L.; — **Phillips,** W.; — **Smith,** A. — **Subjects,** *etc.*; — **Sumner,** W. G., *and others*; — **Whately,** R.

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Polk, Josiah F. The claim of the Church of Rome to the exercise of religious toleration during the proprietary government of Maryland, examined. *n.p.*, [1846]. 8°. 32 p. (**Pm.,** v. 118.) [1]

Polynesia. *See* **Cooper, H. S.**

Ponca Indians. *See* **Boston.** **Ponca Committee.**

Poole, Stanley Lane. Egypt. With illus. Lond., 1881. 16°.
ing, S. F., *ed.* Foreign countries.) [1]

Poor, Henry V. Manual of the railroads of the United States
annual number. N.Y., 1881. 8°. [1]

— Shall the public faith be maintained? Review of the decisi
preme Court of the United States in the sinking fund
Pacific R.R. Company *vs.* The United States, Central Paci
pany *vs.* Albert Gallatin. [N.Y., 1880.] 8°. xi p. [3, *Autho*

Reprinted from the Manual of the railroads of the United States for

Poore, Alfred. A memoir and genealogy of John Poore. 1615-
1881. 4°. Portraits. [1]

Poore, John. *See* **Poore, A.**

Popham, *Sir* John. Reports and cases, [1592-97]. Tr. into E
some remarkable cases reported by other learned pens sin
[1617-26, 2d ed.] Lond., 1682. f°. [1]

With MS. notes.

Popular science monthly. Conducted by E. L. and W. J. Yo
15-17. N.Y., 1879-80. 3 v. 8°. [1]

Population. *See* **Bourne, S.**

Port Royal, *S. C.* *See* **Pierce, E. L.**

Porter, Fitz John. Appeal to the president of the United S
examination of the proceedings of the general court-marti
with accompanying documents. Morristown, N.J., 1869.
Author.]

— Appeal [to the President of the United States, for a revie
Morristown, N.J., 1874]. 8°. 8 p. [3, *Author.*]

— Brief suggestions in the case of General Fitz John Porter.
N.J., 1874. 8°. 31 p. [3, *Author.*]

— Evidence (after-discovered) in support of appeal for rehear
Gen. Porter. Morristown, N.J., 1874. 8°. 13 p. [3, *Author.*

— [Extract from the Cincinnati Commercial on the Fitz Joh
Anon.] *n.t.p.* Newspaper slip. [3, *Gen. Fitz-John Porter, Mo*

— Justice for Fitz John Porter. [From the St. Paul Pioneer
n.p., 1880. Broadside. [3, *Gen. Porter.*]

— Letter [in reply to a letter suggesting unfavorable points in hi
Morristown, N.J., 1880. 8°. 26 p. [3, *Author.*]

— Opinions and memorials in the case of Gen. Fitz John Porter.
N.J., 1874. 8°. 21 p. [3, *Gen. Porter.*]

— Republican press on the Fitz-John Porter case. *n.t.p.* [1
[3, *Gen. Porter.*]

— Statement of the services of the fifth army corps, in 1862, in
ginia. N.Y., 1878. 8°. [3, *Author.*]

— *See* **Blair,** M ; — **Choate,** J. H.; — **Johnson,** R.; — **McDon**
Randolph, T. F.; — **Slater,** J. S.; — **West Point.** *Board o*

Porter, Noah. The American colleges and the American pub
With after-thoughts on college and school education. N.
12°. [3]

— The Christian college. Address, Wellesley College, May 2
laying of the corner-stone of Stone Hall. Bost., 1880. 16°.

Porter, *Me.* *See* **Moulton, T.**

Portland, *Oregon.* *City Superintendent of Public Schools.* 7t
report, 1880-81. Portland, 1880-81. 8°. [3]

Portland and Ogdensburg Railroad. 3d annual report of
and directors, 1872. Portland, 1872. 8°. [4]

— Eastern division, Vermont division. Resources, populatio
of the country tributary thereto. Also, its relations to the
commerce of the Great Lakes. Portland, 1872. 8°. 70 p. [

rtsmouth, *N.H.* *See* **Brewster,** C. W.

tter, Joseph S. The past, present and future of Boston. Speech on the subject of uniting certain cities and towns with Boston, in the Massachusetts Senate, April 24, 1873. Bost., 1873. 8°. 84 p. [4]

well, J. W. Introduction to the study of Indian languages. *See* **Smithsonian Institution.** *Bureau of Ethnology.*

actice. *See* **Bigelow, M. M.;— Curtis, B. R.;— Miller, W. E.,** *and* **Field,** G. W.

eble, George Henry. History of the flag of the United States. 2d revised ed. Illus. Bost., 1880. l. 8°. xxi, 815 p. [1]

escott, William. *See* **Winthrop, R. C.**

escott, *Mass.* Reports of the selectmen and school committee, 1861-62. Northampton, 1862. 8°. [2]

esidential counts: a complete official record of the proceedings of Congress at the counting of the electoral votes in all the elections of president and vice-president of the United States; with congressional debates. With an analytical introduction. [*Anon.*] N.Y., 1877. 8°. liv, 670 p. [1]

ess. *See* **Paterson, J.**

eston, J. T. L. Sketch of the Hon. John Howe Peyton. Bost., 1881. 8°. 14 p. Portrait. [3, *Jeremiah Colburn, Boston.*]

ime, Frederick, *Jr.* A catalogue of official reports upon geological surveys of the United States and territories, and of British North America. Phila., 1879. 8°. 71 p. [3, *Author.*]

From v. 7, Transactions of the American Institute of Mining Engineers.

Same. Supplement 1. *n.p., nd.* 8°. 13 p. [3, *Author.*]

From Transactions of the American Institute of Mining Engineers.

ince, L. Bradford. General laws of New Mexico, [1880]. *See* **New Mexico.** *Legislative Assembly.*

ince Society. Publications. Bost., 1880. sm. 4°. [1]

Namely.

Champlain, S. de. Voyages. Tr. from the French by C. P. Otis. With historical illustrations and a memoir by E. F. Slafter. Vol. 1. 1567-1635.

inceton, *Mass.* Annual report of the valuation and taxes for the year 1880. Fitchburg, 1880. 8°. [3]

Celebration of the 100th anniversary of the incorporation of Princeton, Oct. 20, 1859. Including the address of C. T. Russell, the poem of E. Everett, and other exercises. Worcester, 1860. 8°. [2]

incipals of Institutions for the Deaf and Dumb. Proceedings, [1st, 2d, 4th] conference, 1868, 72, 80. [Wash.], Northampton, *etc.*, [1868]-80. 8°.

The report of the first conference, held at Washington, 1868, was published as an appendix to the 11th annual report of the Columbia Institution for the Deaf and Dumb; the second report of the conference held at Flint, Mich., forms the appendix to the 10th biennial report of the Michigan Institution for the Education of the Deaf and Dumb and Blind; the report of the third conference, held at Philadelphia, was not published; that of the 4th conference, held at Northampton, is bound with the 13th annual report of the Clarke Institution.

isons. *See* **Great Britain.** *Commissioner of Prisons;* — **International Penitentiary Congress,** *Stockholm;* — **Journal** of prison discipline; — **Massachusetts; — Pennsylvania; — Scotland.**

rocter, George H. The fisheries of Gloucester, 1623-1876. Giving an account of the settlement of the town, *etc.* [*Anon.*] Gloucester, [1876]. 8°. 88 p. [1]

The fishermen's memorial and record book, containing a list of vessels and their crews, lost from the port of Gloucester, 1830-73. Gloucester, 1873. 8°. Illus. [1]

rogress. *See* **Mulhall, M. G.**

roperty. *See* **Heywood, E. H.**

rostitution. *See* **Parent-Duchâtelet, A. J. B.**

rotestant Episcopal Church in Maryland, Massachusetts, Pennsylvania, Virginia. *See* **Perry, W. S.**

Protestant Episcopal Church in the United States. Autho
of the 3d Church Congress, Nov. 14-17, 1876. N.Y., 1876. 8°. [
lock, Worcester.]

Contains an address on the morals of politics, by A. H. Bullock.

— *See* **Perry, W. S.**

— *Church Temperance Society.* The Church Temperance Society:
of its character and purpose. [By B. B. Smith.] N.Y., 188
[3, *B. F. De Costa, New York.*]

— - Manual. N.Y., 1881. 16°. 18 p. [3, *B. F. De Costa, New Yor*

Protestant Episcopal Church in Vermont. Journal of proc
annual convention; being the 25th annual convention, since th
ization of the diocese, 1857. Burlington, 1857. 8°. [3]

Protestantism. *See* **Bacon, L. W.**

Proverbs. *See* **Long, J.**

Providence, *R.I.* List of licensed liquor dealers in Providence,
Providence, 1865. 8°. 12 p. [2]

— *Census Committee.* Census of the city, July, 1855; with account
ufactures, trade, commerce, *etc.* By E. M. Snow. Provide
(7), 57, 16 p. [2]

— *City Auditor.* 22d, 33d-34th annual report, showing the receipt
ditures, 1868, 79-80. Providence, 1868-81. 8°. [2, 3, *Rev. Edw*
Providence, R.I.]

— *City Council.* Organization of the municipal government, J
2d ed.; June 4, 1860. Providence, 1856-60. 8°. [2]

— - Report on the introduction of gas light into the city. Prov
8°. 23 p. [2]

— *Public Library.* Finding list of the library, 1880. Providenc
[2]

— - 3d report of the librarian, 1880. Providence, 1881. 8°. [2]

— *School Committee.* Annual report, 1880. Providence, 1880. 8°.
M. Stone, Providence, R.I.]

— *Superintendent of Health.* 1st annual report, 1857. Providen
[2]

— - Measures proposed for the prevention of Asiatic cholera in
Report to the board of aldermen, by E. M. Snow, Superintend
dence, 1865. 8°. 15 p. [2]

— - Report upon fat and lard melting. Providence, 1871. 8°. 11

— - Report upon sundry documents relating to Asiatic cholera,
by the governor of Rhode Island, to the Board of Health. By
Superintendent. Providence, 1865. 8°. 13 p. [2]

— - Small pox and the protective power of vaccination in Prov
port by E. M. Snow, Superintendent. Providence, 1869. 8°.

— *Water Commissioners.* 2d-3d quarterly report, April 1, July 1,
dence, 1870. 8°. [2]

— *See* **Carpenter, K.**

— **Athenæum.** 45th annual report, 1880. Providence, 1880. 8°.

— **First Congregational Church.** *See* **Staples, C. A.**

— **Home for Aged Men.** 6th annual report. Act of incorporati
Providence, 1880. 16°. [3]

Provincetown, *Mass.* [Description of Provincetown. *Anon.*]
24°. 18 p. [3, *Dr. Henry Shortle, Provincetown.*]

Prussia. *See* **Evans, T. W.**

Public ledger almanac, 1874, 77. G. W. Childs, publisher. Phil
12°. [3]

Public worship. *See* **Paterson, J.**

Publishers' trade list annual, 1880. 8th year. N.Y., 1880. l. 8°.

Publishers' weekly. Vol. 17-18. N.Y., 1880. 2 v. l. 8°. [1]

ulling, Frederic Sanders, *editor.* Foreign countries and British colonies. [Lond., 1880-81.] 9 v. 16°.

Namely.

Eden, C. H. The West Indies.
Fitzgerald, J. F. V. Australia.
Kay, D. Austria-Hungary.
Markham, C. R. Peru.
Morfill, W. R. Russia.
Mossman, S. Japan.
Poole, S. L. Egypt.
Roberts, M. France.
Sergeant, L. Greece.

umphrey, Stanley. Indian civilization: a lecture. With introduction by J. G. Whittier. Phila., 1877. 8°. 52 p. [3]

unchard, George. History of Congregationalism. Vol. 4. Congregationalism in America. Vol. 1. Bost., 1880. sm. 8°. [1]

Vol. 4. New England, Virginia, Maryland, the southern islands, Long Island, New Jersey, North Carolina, South Carolina, Georgia, and Canada.

unctuation. *See* **Bigelow, M. T.**

urry, Jean Pierre. Memorial upon the present condition of Carolina, and the means of its amelioration. [Lond., 1724], *reprinted,* Augusta, Ga., 1880. sm. 4°. 24 p. [3, *Charles C. Jones, Savannah, Ga.*]

utnam, George. A discourse at the installation of Rev. David Fosdick, as pastor of the Hollis Street Church, Boston, March 3, 1846. Bost., 1846. 8°. 72 p. [3, *S. P. Mayberry, Boston.*]

- The man and the soldier. Bost., 1861. 24°. 17 p. (Army series, no. 1.) [3, *S. P. Mayberry, Boston.*]

utnam, William Lowell. *See* **Bartol, C. A.**

uebec, *City.* *See* **Literary and Historical Society of Quebec.**

uebec, *Province.* The civil code of Lower Canada, with a synopsis of changes in the law, *etc.* By T. McCord. 3d ed., with notes of changes to Jan., 1880. Montreal, 1880. 16°. [1]

— *Department of Crown Lands.* Settlers' guide. 1880. Montreal, 1880. 8°. 45 p. Map. [2]

— *Legislative Council and Assembly.* An act to amend and consolidate the laws relating to the organization of agricultural societies in Lower Canada. Toronto, 1857. 8°. 10 p. [2]

— *Legislature.* Journals of the Legislative Assembly, 3d session, 4th Parliament, 1880. [Vol. 14.] Quebec, 1880. 8°. [2]

— — Journals of the Legislative Council, 3d session, 4th Parliament, [1880]. Vol. 14. Quebec, 1880. 8°. [2]

— — [Sessional papers, v. 2-3, 5-6, 9, 12. 1869, 69/70, 71-72, 75, 78/9.] Quebec, 1869-79. 6 v. 8°. [2]

— — Statutes, 3d-4th session, 4th Parliament, 1880-81. Quebec, 1880-81. 2 v. 8°. [2]

— *Library of the Legislature.* 6th supplement to the alphabetical catalogue, containing the books, pamphlets, maps, &c., added to the library, 1879-80. [*In French and English.*] Quebec, 1881. 8°. [2]

— *Superintendent of Education.* Report, 1878-80. Quebec, 1879-81. 2 v. 8°. [2]

Queensbury, *N.Y.* *See* **Holden, A. W.**

Quick, Robert Hebert. The schoolmaster, past and future. A lecture. Camb., 1879. 8°. iv, 23 p. [3]

Quincy, *Mass.* *See* **Adams, C. F.,** *Jr.*

Quincy, Weymouth, and Braintree directory. Vol. 6. 1880-81. Bost., 1880. 8°. Map. [1]

Quitman, John Anthony. *See* **Hodgson, J.**

Quotations. *See* **Allibone, S. A.; — Ballou, M. M.; — Bohn, H. G.**

Railroads, The, of Ohio. Their rise and progress, and present condition, *etc.,* 1862. Cincin., 1862. 8°. 16 p. [2]

Railways. *See* **Atkinson,** E.; — **Brown,** W. O.; — **Geor**
H. A.; — **Illinois**; — **Iowa**; — **Massachusetts**; — **Michigar**
Pierce, E. L.; — **Poor,** H. V.; — **Virginia**; — **Webb,** E. F.

Ramsay, David. The history of the revolution of South-Caroli
1785. 2 v. 8°. Maps. [1]

Rand, McNally & Co. Indexed atlas of the world, with histori
and descriptive matter. Illustrated by colored diagrams.
6°. (4), 852 p. [1]

Randolph, A. M. F. Reports, 1880-81. *See* **Kansas.** *Suprem*
ports, v. 24.

Randolph, Edmund. Abridgment of the public permanent law
[1796]. *See* **Virginia.**

Randolph, Theodore F. Speech in the Senate of the United
1, 1880, on the bill for the restoration of Gen. Fitz John
United States army. Wash., 1880. 12°. 24 p. [3, *Gen. Fitz*

Raney, George P. Cases in the Supreme Court, 1878-80. *See*
preme Court. Cases, v. 17.

Rapalje, Stewart. A digest of New York decisions, 1878-81.
cases affirmed, reversed, overruled, and otherwise criticised
of the New York Reference digest. Jersey City, 1881. l. 8
[1]

Raum, John O. History of Trenton, N J. Trenton, 1871. 8°.
[1]

Rawlinson, George. The origin of nations. On early civi
ethnic affinities, etc. N.Y., 1878. 16°. Maps. [3]

Reading. *See* **Atkinson,** W. P.; — **Smart,** J. H.

Reading directory. *See* **Wakefield.**

Reasons why the bill "to authorize the city of Boston to take
and other property for a landing for the East Boston ferrie
rejected. [*Anon.*] Bost., 1881. 8°. 7 p. [4]

Reciprocity. *See* **Kelley,** W. D.; — **Medley,** G. W.; — **Nation**
Trade.

Reconstruction of the Southern States. *See* **McPherson,**
E. L.

Record Society for the Publication of Original Document
Lancashire and Cheshire. [Prospectus, rules, report,
n.p., [1880]. 8°. [3]

Redfield, Amasa Angell. Reports of cases in the Surrogates'
state of New York, [1878-81]. Vol. 4. N.Y., 1881. 8°. [3]

Redfield, H. V. Homicide, North and South. Being a compa
crime against the person in several parts of the United St
1880. 16°. [1]

Redman Farm, *Canton.* *See* **Ames,** E.

Reed, B. F. H. A hundred years ago. Burning of Bedford
Bedford], by the British, Sept. 5, 1778. [New Bedford, 1878.]
Author.]

Reed, James Hervey. *See* **Butterworth,** H.

Reemelin, Charles. Treatise on politics as a science. Cincin.,

Reference catalogue of current literature, containing the full t
now in print and for sale. Lond., 1880. 8°. [1]

Reformatory schools. *See* **Massachusetts.** *State Reform S*
borough; — **Michigan.** *State Reform School.*

Reiber, Émile. De la méthode générale pour l'enseignement
dessin. Conférence tenue au siège de la Société [pour l'In
mentaire], 11 jan., 1879. Paris, 1879. 8°. iv, 24 p. [3]

Reid, Whitelaw. Town hall suggestions. An address at the
new city hall, Xenia, Ohio, Feb. 16, 1881. N.Y., 1881. 16°.

iss, W., *and* **Stübel, A.** Peruvian antiquities. The necropolis of Ancon in Peru. Illustrations of the civilisation and industry of the empire of the Incas, being the results of excavations made on the spot. Part 1–3. Lond., [1881]. 3 v. f°. [1]

ligion. *See* **Dorchester, D.**

ligion and education. *See* **Matthews, S.**

ligion and science. *See* **Gulliver, J. P.**

ligions. *See* **Gould, S. B.; — Müller, (F.) M.**

ligious toleration. *See* **Thomson, J.**

musat, Claire Élisabeth Jeanne Gravier de Vergennes, *comtesse* de. Selection from letters to her husband and son, 1804–13. From the French by Mrs. C. Hoey and J. Lillie. N.Y., 1881. 12°. Portrait. [1]

port, or essay, to illustrate the advantages of direct inland communication through Kent, Surrey, Sussex, and Hants, to connect the metropolis with Shoreham, Rochester, and Portsmouth, by a line of engine railroad. Lond., 1823. 8°. 31 p. Plan. [3]

porter, The. Vol. 10–11. Bost., 1880–81. 2 v. l. 8°. [1]

public of republics. *See* **Sage, B. J.**

publican or Democrat? A retrospect with its lesson for the citizen of 1880. [*Anon.*] N.Y., 1880. 32°. 60 p. [1]

publican Party. *National Convention, Chicago,* 1880. Proceedings. Reported by E. Davis. Chicago, 1881. 8°. [1]

Union Republican Congressional Committee. Documents issued by the committee, presidential campaign of 1880. No. 1–70 [60 wanting]. Wash., 1880. 8°. [3]

See **Allen, S. M.**

publics. *See* **Townsend, L. T.**

pudiation. *See* **Butts, I.**

vere, Paul. *See* **Watson, J. L.**

vere directory. *See* **Chelsea and Revere directory.**

xford, J. D. Genealogical record of the Rexfords. [Janesville, Wis., 1881.] 8°. 8 p. [3, *Author.*]

ynolds, John Fulton. *See* **Pennsylvania Historical Society.**

hode Island. *Board of Education.* 11th annual report of the Board, with the 36th annual report of the Commissioner of Public Schools. Providence, 1881. 8°. [2]

Commissioner of Public Schools. 24th annual report, 1869. Providence, 1869. 8°. [2]

Commissioners to Revise the Public Laws. The public statutes of Rhode Island and Providence Plantations as revised by the Commissioners. *n.p.*, [1881]. 4°. xi, 946 p. [3, *Hon. Robert R. Bishop, Newton.*]

General Assembly. [Acts and resolves], May, 1799; June, 1815; May, June, 1817; May, Oct., 1818; Feb., June, Oct., 1819; Feb., May, Oct., 1820; Feb., May, June, Oct., 1821; Jan., May, Oct., 1822; June, 1823; Jan., Oct., 1824; Oct., 1825; May, June, 1826; May, Oct., 1827; June, 1828; May, June, Oct., 1829; May, June, Oct., 1830; May, June, Oct., 1831; June, Aug., Oct., 1832; June, 1833; Oct., 1833; May, Oct., 1834; Jan., May, Oct., 1835; Jan., June, 1836; Jan., May, 1837; May, Oct., 1838; May, June, Oct., 1839; Oct., 1841; Jan., May, 1846; Oct., 1847; Jan., June, Oct., 1848; Jan., May, June, Oct., 1849; Jan., 1850; Oct., 1854. *n.t.p.* [Providence, 1799–1854.] 8°. [2]

The volume of laws for May session, 1799, is incomplete.

— Acts, resolves and reports, May session, 1880–Jan. session, 1881. Providence, 1881. 8°. [2]

— Index to the printed acts and resolves, petitions and reports, 1850–62. By J. R. Bartlett. Providence, 1863. 8°. [2]

— Manual with rules and orders for the use of the General Assembly, 1880–81. Prepared by J. M. Addeman. Providence, 1880. 12°. [2]

Rhode Island. *General Assembly, continued.*

— - Public laws, Jan. 1855–Jan. 1857. Providence, 1857. 8°. [2]

— - *Same.* May, 1871–May, 1872. [8th supplement.] Providen
[2]

— - *Same.* Jan. session, 1881. [Providence, 1881.] 8°. [2]

— - Report of the finance committees upon the reports of the s
quartermaster general, adjutant general, paymaster general
treasurer, Jan. 29, 1862. Providence, 1862. 8°. 14 p. [1]

— - A school manual, containing the school laws of Rhode Island
ions, remarks and forms, 1873. Providence, 1873. 12°. [2]

— *State Registrar.* 10th, 24th, 26th–27th report upon the births, m
deaths in the state, 1862, 76, 78–79. Providence, 1864–80. 4 v.

The 10th and 24th reports were published by the Secretary of State. The
prepared by J. R. Bartlett; the 24th, by E. M. Snow; the 26th–27th, by C. H.

— History of the seventh squadron Rhode Island cavalry. By
[*Anon.*] Yarmouth, Me., 1879. 8°. 11 p. [1]

— *See* **Anthony, H. B.**; — **Callender, J.**; — **Dix, J. R.**; — **Frieze,**
ner, A. B.; — **Pierce, E. W.**

Rhode Island Congregational Conference. Minutes, 1880–
report of the R. I. Home Missionary Society. Providence
[2, 3, *Rev. Thomas Laurie, Providence, R.I.*]

Rhode Island Historical Society. Proceedings, 1872/3, 73/4,
Providence, 1873–81. 5 v. 8°. [3]

Proceedings, 1872/3, contain an account of the semi-centennial celebration
July 19, 1872; 1873/4, a history of education in Rhode Island including the fou
of the Rhode Island Institute of Instruction, by E. M. Stone.

Rhode Island historical tracts. Nos. 11–13. Providence, 1880–8

Contents.

No. 11. **Rider,** S. S. Bibliographical memoirs of three Rhode Island au
Angell, Frances H. (Whipple) McDougall, Catharine R. Williams. [With]
yers' opinion on the right of the people of Rhode Island to form a constitution
12. **Parsons,** C. W. The Medical School formerly existing in Brown
professors and graduates.
13. **Vernon,** T. Diary of Vernon, a loyalist banished from Newpor
Island General Assembly in 1776.

Rhode Island register for 1853: containing a business directory
By George Adams. Vol. 1. Providence, [1853]. 12°. [3, *Au*
Boston.]

Rhode Island School for the Deaf. 3d annual report, 1880.
1881. 8°. [3]

Rhode Island Soldiers and Sailors Historical Society. Pe
tives of the battles of the rebellion; papers read before the So
6–10. Providence, 1878–79. sm. 4°. [1]

Contents.

No. 4. **Butts,** F. B. My first cruise at sea and the loss of the iron-clad M
6. **Tobie,** E. P. A trip to Richmond as prisoner of war.
7. **Parkhurst,** C. H. Incidents of cavalry service in Louisiana.
8. **Hutchinson,** W. F. The Bay fight; a sketch of the battle of Mobile B
9. **Metcalf,** E. Personal incidents in the early campaigns of the third
Island volunteers and the tenth army corps.
10. **Case,** E. T. Battle of the Mine.

— *Same.* Personal narratives of events in the rebellion. 2d seri
7–8. Providence, 1880. sm. 4°. [1]

Contents.

No. 2. **Barney,** C. H. A country boy's first three months in the army.
3. **Chase,** P. S. Organization and service of Battery F, First Rhode Is
tillery to Jan. 1, 1863.
4. **Avery,** W. B. The marine artillery with the Burnside expedition an
Camden, N. C.
5. **Traver,** L. Burnside expedition in North Carolina. Battles of Roan
Elizabeth City.
7. **Addeman,** J. M. Reminiscences of two years with the colored troops
8. **Peck,** G. B., *Jr.* A recruit before Petersburg.

Rice, Alexander Hamilton. The reciprocal relations of educatio
prise. Oration at the commencement of Union College, Ju
Bost., 1881. 8°. 27 p. [3, *Author.*]

Rice, David Hall *and* Lepine C. Digest of the decisions of law and practice in the Patent Office from 1869 to 1880. Bost., 1880. 8°. [1]

Rich, Shebnah. The mackerel fishery of North America: its perils and its rescue. A lecture, read before the Massachusetts Fish and Game Association of Boston. Bost., [1879]. 8°. 40 p. [3]

Richards, Z. Public schools. Their defects, and the remedies. *n.t.p.* [1881]. 8°. (11) p. [3]

Richardson, H. W. The national banks. N.Y., 1880. 32°. [1]

Richey, Alexander G. The Irish land laws. Lond., 1880. sm. 8°. [1]

Richmond, *R.I.* *See* **Irish,** J. R.

Richmond, *Va.* **Anti-Jackson Convention.** Proceedings: with their address to the people of Virginia. Richmond, 1828. 8°. 38 p. [1]

Ricketson, Daniel. History of New Bedford, Mass.: including Westport, Dartmouth, and Fairhaven. New Bedford, 1858. 12°. [1]

Rider, Sidney S. Bibliographical memoirs of three Rhode Island authors, Joseph K. Angell, Frances H. (Whipple) McDougall, Catharine R. Williams. [With] The nine lawyers' opinion on the right of the people of Rhode Island to form a constitution. Providence, 1880. sm. 4°. 92 p. (**Rhode Island** hist. tracts, no. 11.) [1]

Ridlon, G. T. Contribution to the genealogy of the Burbank and Burbanck families, in the United States. Saco, Me., 1880. 12°. 24 p. [3, *Author.*]

Rifles. *See* **Mason,** T. B. M.

Rives, Francis E. Substance of an address to his constituents, Aug. 2, 1850. [Petersburg, 1850.] 8°. 12 p. [1]

Roads, Samuel, *Jr.* A guide to Marblehead. Marblehead, 1881. 16°. 64 p. Illus. [3, *Author.*]

Roberts, Ellis Henry. The battle of Oriskany: its place in history. Address at the centennial celebration, Aug. 6, 1877. Utica, 1877. 8°. 66 p. [3]

Roberts, Margaret. France [*Anon.*] Lond., 1881. 16°. Map and illus. (**Pulling,** F. S., *ed.* Foreign countries.) [1]

Robinson, Henry. Sewage disposal. Lond., 1880. 16°. viii, 80 p. [1]

Robinson, Robert. Teacher's manual of method and organisation, adapted to primary schools. 6th ed. Lond., 1880. 16°. [1]

Sanctioned by the Commissioners of National Education, Ireland.

Rochester, *N.Y.* Course of study, revised Sept., 1880. Organization and grading of the public schools of the city. [Rochester, 1880.] 8°. 16 p. [3, *A. L. Mabbett, Rochester, N.Y.*]

Rockport business directory. *See* **Gloucester** directory.

Rocky Mts. *See* **Bird,** I. L.

Rogers, Charles. Genealogical memoirs of John Knox and of the family of Knox. Lond., 1879. 8°. Portrait. [1]

— Genealogical memoirs of the families of Colt and Coutts. Lond., 1879. 8°. 59 p. [1]

— Genealogical memoirs of the family of Sir Walter Scott, with a reprint of his Memorials of the Haliburtons. Edin., 1877. 8°. Illus. [3, *Author.*]

Rogers, Henry Wade. Illinois citations: an alphabetical table of English and American cases cited in the opinions of the Illinois Supreme Court. Chicago, 1881. 8°. xvi, 1161 p. [1]

Rolle, Henry. Les reports de divers cases en le Court del Banke le Roy en le temps del' reign de Jaques, [1614–25]. Lond., 1675-76. 2 v. in 1. f°. [1]

With MS. notes.

Rollins, *Mrs.* Ellen H. New England bygones. By E. H. Arr [*pseud.*]. Phila., 1880. 16°. [1]

Roman Catholic Church. *See* **Connelly,** P.; — **Lowell,** R. T. S.; — **Pascal** *the younger, pseud.*; — **Polk,** J. F.

Rome. *See* **Arnold,** W. T.; — **Coulanges,** F. de; — **Smith,** R. B.

Ropes, John Codman. Taxation of mortgaged real estate: bei
stance of remarks made before the joint committee on taxa
Legislature of Massachusetts, Jan. 17 and 23, 1881. With
Bost., 1881. 8°. 14 p. [3, *Author.*]

— Who lost Waterloo? *n.t.p.* [Bost., 1881.] l. 8°. 16 p. [3, *Auth*
From the Atlantic monthly, June, 1881.

Ropes, Joseph S. Financial aspects of the rebellion. *h.t.p.* [1863.
[1]

Rose, George. Cases in bankruptcy; containing reports of cases
Lord Chancellor Eldon, 1810-16. 2d ed. Lond., 1821. 2 v. 8°.

Rottermund, E. S., *comte* de. 2d rapport sur l'exploration des
rieur et Huron. Toronto, 1857. 8°. 50 p. [3]

Rowell, John W. Reports of cases, [1879-80]. *See* **Vermont**
Court. Reports, v. 52.

Rowlandson, *Mrs.* Mary (White). Narrative of the captivity, suf
removes of Mrs. Rowlandson, taken by the Indians at Lanc
Appended, a century sermon, preached at the First Parish in
May 28, 1753, by Rev. T. Harrington. Clinton, 1853. 18°. 73 p.
S. Nourse, Lancaster.]

Roxbury, *Mass.* Auditors' 11th, 15th annual report of receipts an
tures, 1841/2, 45/6; 5th-10th annual report of the committee o
on the receipts and expenditures for the year ending Jan. 31
31, 1856. Roxbury, 1842-56. 8°. [3]

— Report of the committee in favor of the union of Boston and
Bost., 1851. 8°. 35 p. [3]

— [Report of the committee upon the expediency of the selectmen
ing the Legislature for a city charter.] *n.t.p.* [1845]. 8°. 7 p. [

— [Report on the subject of an application to the Legislature for
ter.] *n.t.p.* [1845]. 8°. 8 p. [3]

— *City Council.* Annual appropriations, 1847/48, 48/49. *n.t.p.*
1847-48.] 8°. [3]

— - Joint special committee's report on the shire town of Norfo
n.t.p. [Roxbury, 1847.] 8°. 16 p. [2]

— - Majority and minority reports of the committee on public i
n.t.p. [Roxbury, 1847.] 8°. 16 p. [3]

— - Municipal register, 1848/49, 50/51. Roxbury, 1848-50. 2 v. 8°.

— - Report of the committee on public instruction on making pr
an English high school for boys. Roxbury, 1857. 8°. 16 p. [1]

— - Report of the joint special committee on the buildings at Br
and a new almshouse. Roxbury, 1849. 8°. 12 p. [3]

— *Committee of Police.* Regulations for maintaining the cleanlin
and bounds of the streets. *n.t.p.* [Roxbury, 1847.] 8°. 7 p. [3

— *Mayor.* Address of H. A. S. Dearborn, 1850; of S. Walker, 185
Sleeper, 1856-57; of W. Gaston, 1861. Roxbury, 1850-61. 8°. [3

— *Mayor and Aldermen.* Proceedings of the mayor and aldermen
the unlawful sale of intoxicating drinks. Roxbury, 1853. 8°. 26

— *School Committee.* Regulations of the school committee, 1847,
Roxbury, [1847]-61. 8°. [3]

— - Report of the examination of the grammar [and primary] scho
bury, 1847. Roxbury, 1847. 8°. 37 p. [3]

— *See* **Boston.** *Record Commissioners;* — **Choate,** R.; — **Mass**
General Court; — **Safford,** N. F.

Roxbury directory, with an almanac for 1862. Number 8. B
Sampson & Co. Roxbury, [*cop.* 1861]. 16°. Map. [3, *Augu*
Boston.]

Royal Geographical Society. Journal. Vol. 49. 1879. Lond
[3]

oyal Geographical Society, *continued.*

Proceedings. New monthly series. Vol. 2. 1880. Lond., 1880. 8°. [2]

oyalston, ***Mass.*** Copy of the valuation and taxes, 1860, 72, 80. Winchendon, Athol Depot, 1861-80. 8°. [3, *J. W. Bartlett, So. Royalston.*]

Report of the selectmen of the town for the financial year 1852-3. Also, the valuation and tax for 1852. Lowell, 1853. 8°. [1]

See **Lee,** J.

ueter, Henry H. Argument of the brewers for legislative discrimination in favor of ale and lager-beer, delivered before the joint special committee of the Massachusetts Legislature on the liquor question, Feb. 14, 1878. Bost., 1878. 8°. 23 p. [3, *Author.*]

uffin, Edmund. The political economy of slavery; or, the institution considered in regard to its influence on public wealth and the general welfare. *n.p.*, [185-]. 8°. 31 p. [3]

ugby, ***Tenn.*** *See* **Hughes,** T.

uggles, Samuel Bulkley. Consolidated table, exhibiting by decades and geographical divisions the agricultural progress of the nation, in cheapening the food of America and Europe. Printed for the use of the Chamber of Commerce of New York. N.Y., 1880. f°. 31, xix p. Map. [3, *Author.*]

Supplementary to "The relations of American agriculture to the American Union, and the commerce and population of the world."

unnells, John S. Reports, [1879-80]. *See* **Iowa.** *Supreme Court.* Reports, v. 52-54.

ural improvement. *See* **Northrop,** B. G.

ussell, Charles Theodore. Manhood suffrage under constitutional guaranty: argument in favor of rescinding the provision in the state constitution establishing the payment of a state or county tax as a qualification of voters, Feb. 7, 1879. Bost., 1879. 8°. 20 p. [3]

ussia. *See* **Greene,** F. V.; — **Morfill,** W. R.; — **Seebohm,** H.

utgers College, ***New Brunswick, N.J.*** Catalogue of the officers and alumni, 1770-1871. New Brunswick, 1872. 8°. [3]

Catalogue of the officers and students, 1873/74-77/78. New Brunswick, 1873-77. 8°. [3]

The centennial celebration of Rutgers College, June 21, 1870. With an historical discourse, delivered by J. P. Bradley, and other addresses and proceedings. Albany, 1870. 8°. 98 p. [3]

Report of the trustees, 1865-66. Trenton, 1867. 8°. [3]

Scientific School. Catalogue of the officers and students, 1867/8. Newark, 1868. 8°. [3]

-Report of the trustees, 1865; [3d] report 1867, with the agricultural lectures, 1866-68, by G. H. Cook; [4th-5th] reports and annual lecture, 1868-69; 6th-14th annual report, 1870-78. Trenton, 1866-78. 8°. [3]

Called "New Jersey State College for the Benefit of Agriculture and the Mechanic Arts," 1867; "New Jersey Agricultural College," 1868-69.

utland County (*Vt.*) **bar.** *See* **Williams,** C. L.

uttenber, Edward M. Catalogue of manuscripts and relics in Washington's head-quarters, Newburgh, N.Y. With historical sketch. Newburgh, 1879. 8°. 75 p. [3, *Author.*]

yerson, Egerton. The loyalists of America and their times: 1620-1816. Toronto, 1880. 2 v. 8°. Portrait. [2]

ylands, J. Paul. The shields of arms formerly in the windows of the parish church of Lymm, Co. Chester, as illustrative of the origin of several local coats of arms. Liverpool, 1879. 8°. 14 p. [3, *Author.*]

A paper read before the Historic Society of Lancashire and Cheshire, 20th Feb., 1879.

-Some account of the Clayton family, of Thelwall, Co. Chester: afterwards of St. Dominic's Abbey, Doneraile and Mallow, Co. Cork. Liverpool, 1880. 8°. 20 p. [3, *Author.*]

A paper read before the Historic Society of Lancashire and Cheshire, 4th Mar., 1880.

Rylands, J. Paul, *continued*.

— The Starkie family of Pennington and Bedford, in the parish o Lancaster. Leigh, [Eng.], 1880. 8°. 17, (1) p. [1]

Sabbath. *See* **Bacon, L. W.**; — **Seelye, J. H.**

Sabin, Joseph. Dictionary of books relating to America. Vol 1881. 8°. [1]

Saco Bay. *See* **Locke, J. L.**

Safford, Nathaniel F. Argument in opposition to the project Boston and Roxbury, April 10, 1867. *h.t.p.* [1867]. 8°. 38 p.

Sagadahoc, *Me.* *See* **Davies, J.**

Sage, Bernard J. The republic of republics; or, American fed By P. C. Centz, [*pseud.*]. 4th ed. Bost., 1881. 8°. xxvii, 606

Strongly advocates the doctrine of state sovereignty.

St. Albans, *Vt.* **First Congregational Church.** *See* **Dutcher**

St. Augustine, *Florida.* *See* **Dewhurst, W. W.**

St. Domingo. *See* **Sumner, C.**

St. John, *N.B.* *Board of School Trustees.* Report, 1880. Saint Jo [2]

St. Louis, *Mo.* Course of study of the St. Louis public schools, views and explanations. St. Louis, [1874]. 8°. [2]

— Mayor's message with accompanying documents, to the munic bly, regular session, 1878; called session, 1879; regular sessio Louis, 1878-80. 3 v. 8°. [3]

— *Board of Directors of Public Schools.* 18th, 20th, 24th, 26th an 1872, 74, 78, 80. St. Louis, 1873-81. 4 v. 8°. [3]

— *Court of Appeals.* *See* **Berry, A. M.** Cases, v. 7-8.

— *Public School Library.* Bulletin. No. 1-4, Jan.-Aug., 1879; 7-8 1880; 11-12, Sept.-Dec., 1880. St. Louis, 1879-80. 8°. [3]

No. 11 contains a "Klassificirter Katalog der deutschen Werke."

St. Louis Immigration Society. Address of the executive co the State Immigration Convention. Results of the Conven and purposes of the St. Louis Society, 1880. St. Louis, 1880. 8

Saintsbury, G. Dryden. N.Y., 1881. 12°. (**Morley, J.**, *ed.* Eng letters.) [1]

Salem, *Mass.* Bill of mortality for the town of Salem, 1830. Broadside. [2]

— By-laws of the town. Salem, 1824. 8°. 22 p. [2]

— *Same.* [With] acts for the regulation of the market, and for the tion of marriages. Salem, 1835. 12°. 23, (1) p. [2]

— Expences of the town for the year ending March 14, 1814, 16 [of expenses, *etc.*, 1831]; — Reports of the several department Salem, 1814-53. 8°. [2]

— Report of the overseers of the poor, March 1, 1820. Salem, 1 side. [2]

— Report of the town's committee, on the subject of city governme 1836. 8°. 21 p. [2]

— Statement of the expenditure for the support of the poor, Salem, 1824-25. 8°. [2]

— *Alms House.* Documents on the subject of the Alms House, [Salem, 1832.] 12 p. 8°. [2]

— - Rules and regulations for the government of the alms-hou ment. Salem, 1838. 8°. 13 p. [2]

— *City Council.* Report of the joint special committee on a sup for the city. Salem, 1864. 8°. 8 p. [2]

— - Rules and orders of the common council; with the city chart ordinances, *etc.* Salem, 1837. 18°. 58 p. [2]

lem, *Mass. City Council, continued.*

- *Same.* Salem, 1845. 18°. 82 p.

City Solicitor. Report on the sale of the Neck lands. Salem, 1858. 8°. 21 p. [2]

Mayor. Inaugural address of W. S. Messervy, Mayor, March 24, 1856. Salem, 1856. 8°. 26 p. [2]

See **Batchelder,** H. M.; — **Massachusetts.** *General Court.*

First Church. *See* **Felt,** J. B.

lem directory, and an almanac for 1859. Also, a business directory of South Danvers. By Adams, Sampson & Co. Salem, 1859. 16°. Map. [3, *Augustus Russ, Boston.*]

Same. Salem directory, 1879, 81. No. 18-19. By Sampson, Davenport & Co. Salem, [1879]-81. 2 v. 8°. Map. [1]

lisbury, Edward Elbridge. Mr. William Diodate (of New Haven, 1717-51) and his Italian ancestry. Abstract of a paper read before the New Haven Colony Historical Society, June 28, 1875, with some additions. *n.t.p.* [1881.] 8°. 15 p. [3, *Author.*]

Reprinted from the New England historical and genealogical register for April, 1881.

lisbury, *Mass. See* **Merrill,** J.

mpson, Davenport & Co. Directory catalogue. Bost., 1880. 8°. 16 p. [1]

mson, George W. The United States government, the founder and necessary patron of the Liberian Republic. An address before the American Colonization Society, Jan. 18, 1881. Wash., 1881. 8°. 12 p. [3]

n Francisco, *City. Board of Supervisors.* Municipal reports, 1861/2, 65/6, 66/7, 69/70. San Francisco, 1862-70. 4 v. 8°. [2]

Free Public Library. Catalogue. No. 2. Nov. 1880. San Francisco, [1880]. 8°. [2]

Mercantile Library Association. 28th annual report, 1880. San Francisco, 1881. 8°. [2]

n Francisco, *City and County.* Course of study in the public schools. San Francisco, 1880. 8°. 58 p. [2]

Superintendent of Public Schools. Annual report, 1867; 27th annual report, 1880. San Francisco, 1867-80. 2 v. 8°. [2]

nford, Everts & Co. Atlas of York Co., Me. Phila., 1872. f°. [1]

nitary institutions. *See* **Evans,** T. W.

ratoga, *N.Y. See* **Stone,** W. L.

ugus directory. *See* **Wakefield.**

unders, Thomas William, *and* **Cole,** Henry Thomas. Bail Court reports, [1846-48]. Lond., 1847-49. 2 v. 8°. [1]

vile, *Sir* John. Les reports de divers special cases cybien en le Court de Common Bank, come l'Exchequer en le temps de Royne Elizabeth, [1580-94]. Lond., 1688. f°. [1]

vings banks. *See* **Massachusetts.** *Board of Commissioners of Savings Banks.*

anlan, John F. Why Ireland is poor. Ripe fruit from the tree of British free trade. Chicago, 1880. 8°. 24, (1) p. [3]

hliemann, Heinrich. Ilios. The city and country of the Trojans; results of researches and discoveries on the site of Troy and throughout the Troad, 1871-73, 78-79. Including an autobiography of the author. With a preface, appendices, and notes by R. Virchow, M. Müller, [and others]. With maps, plans, and illus. N.Y., 1881 [1880]. xvi, 800 p. [1]

hmitt, Ludwig von. Resultate der Rechts-Pflege bei den verschiedenen Gerichten der Pfalz während des Stats-Jahres 1857-58, dargestellt bei feierlicher Wieder-Eröffnung der Sitzungen des Kgl. Appellations-Gerichtes zu Zweibrücken, 3 Nov., 1858. Zweibrücken, 1858. 16°. 50 p. [3]

hoales, John, *and* **Lefroy,** Thomas. Reports of cases in the High Court of Chancery in Ireland, during the time of Lord Redesdale, 1802-[06]. N.Y., 1808-11. 2 v. 8°. [1]

With MS. notes.

School architecture. *See* **Henderson, H. A. M.**

School Board chronicle. Vol. 23-24. Lond., 1880-81. 2 v. f°.

School gardens. *See* **Schwab, E.**

Schouler, James. History of the United States under the const 1. 1783-1801. Wash., 1880. 12°. [1]

Schubert, E. Tables of Eunomia. *See* **United States.** *Bure tion.*

— Tables of Melpomene. *See* **United States.** *Ordnance Depart*

Schurz, Carl. *See* **Boston. Committee of Citizens of Mass Boston. [Ponca] Committee.**

Schwab, Erasmus. The school garden. Being a practical co the subject of education. Tr. from the 4th German ed. by Mann. N.Y., 1879. 16°. 92 p. [1]

Science. *See* **American Association for the Advancem ence;** — **American** journal of science; — **Buffalo Society Sciences;** — **Mason,** J.; — **Popular** science monthly; — **Institution.**

Scituate, *R.I.* *See* **Beaman,** C. C.

'Sconset cottage life. *See* **Northrup,** A. J.

Scotland. *General Board of Commissioners in Lunacy.* 22d a Edin., 1880. 8°. [1]

— *Prison Commissioners.* 2d annual report, being the 41st ann prisons in Scotland. Edin., 1879-80. f°. [1]

— *Registrar-General of Births, Deaths, and Marriages.* 21st-22d de report. Abstracts of 1875-76. Edin., 1879-80. 2 v. 8°. [1]

Scott, Lewis A. Act and bull; or, Fixed anniversaries, a paper the Numismatic and Antiquarian Society of Philadelphia, with the bull of Gregory XIII., translated, and the body of t liament. [Phila., 1880.] 8°. 24 p. [3, *Author.*]

Relates to the true method of ascertaining the bi-centennial anniversary at Philadelphia, in 1682.

Scott, Robert N. The war of the rebellion. *See* **United States** *of War.*

Scott, *Sir* Walter. *See* **Rogers,** C.

Scranton, Erastus. Genealogical register of the descendants o ton of Guilford, Conn., 1671. Hartford, 1855. 8°. [2]

Scranton family. *See* **Scranton,** E.

Scribner's monthly. Conducted by J. G. Holland. Vol. [1871]-80. 20 v. 8°. [1]

Seaman, Jordan. [Account of the family of Seamans descend John Seaman, of Hempstead, L.I.] *n.p., n.d.* 4°. 12 p. [1]

Seaman family. *See* **Seaman,** J.

Seamen. *See* **Plimsoll,** S.

Sears, Barnas. *See* **Peabody Education Fund.**

Sears, Edmund H. *See* **Ware,** H.

Seattle, *Wash.* *See* **Choir,** M.

Secession. *See* **De Peyster,** J. W.

Sedgwick, John. *See* **McMahon,** M. T.

Sedition laws. *See* **Virginia.** *General Assembly.*

Seebohm, Henry. Siberia in Europe: a visit to the valley of th north-east Russia. With descriptions of the natural history birds, etc. With map and illus. Lond., 1880. 8°. [1]

Seelye, Julius Hawley. The Sabbath question. Bost., [1880]. 1

Read before the General Association of the Congregational Churches o Salem, June 16, 1880.

Seguin, E. Report on education. 2d ed. Milwaukee, Wis., 18

Self-culture. *See* **Clarke,** J. F.

Seneca County, *N.Y.* *See* **Waterloo Library and Historical Society.**

Sergeant, Lewis. Greece. With illus. Lond., 1880. 16°. Maps. (**Pulling,** S. F., *ed.* Foreign countries.) [1]

Sewage. *See* **Robinson, H.**

Seward, George F. Chinese immigration, in its social and economical aspects. N.Y., 1881. 8°. [1]

The author favors immigration.

Seward, William Henry. The true basis of American independence. 26th anniversary address before the American Institute of the City of New York, 20th Oct., 1853. N.Y., 1853. 8°. 20 p. [3]

Seymour, *Conn.* Census of Seymour, 1880. Seymour, 1880. 16°. 25 p. [1]

— *See* **Sharpe, W. C.**

Shakers. *See* **Eads, H. L.**

Shakespeare, William. The student's Shakespeare. Thirty-seven plays, analyzed and topically arranged. By H. J. Fox. Bost., 1880. l. 8°. vi, (1), 625, xx p. [1]

Shand, Robert W. Reports of cases heard and determined by the Supreme Court of South Carolina. Vol. 13 [South Carolina reports]. 1879-80. Jersey City, 1881. 8°. [2]

Shanly, Walter. *See* **Gaston, W.**

Sharpe, William Carvosso. History of Seymour, Conn., with biographies and genealogies. Seymour, 1879. 8°. Portraits and illus. [1]

— Sharpe genealogy and miscellany. Seymour, Conn., 1880. 18°. Portraits. [1]

Sharpe genealogy. *See* **Sharpe, W. C.**

Shattuck, George Otis. Closing argument before the joint special committee of the Legislature on annexation of Charlestown, April 6, 1868. MS. [1]

Shattuck, Lemuel. *See* **Hudson, C.**

Sheep. *See* **Hayes, J. L.**

Sheffield, William P. Historical address, of the city of Newport, [R.I.], July 4, 1876. With an appendix. Newport, 1876. 8°. 68, xv p. [1]

Sheffield, *Mass.* Centennial celebration of the town, June 18-19, 1876. [Including the historical addresses by J. G. Barnard and A. H. Dailey and the oration by G. A. Hoadley.] Sheffield, 1876. 8°. [1]

Shepherd, John W. Reports, 1879. *See* **Alabama.** *Supreme Court.* Reports, v. 63.

Sheppard, John Hannibal. A brief history of the New England Historic-Genealogical Society, read at the monthly meeting, May 7, 1862. Albany, 1862. 8°. 17 p. [3]

Sherborn, *Mass.* *See* **Morse, A.**

Sherman, John. National finances, specie payments. Speech in the Senate of the United States, March 6, 1876. Wash., 1876. 8°. 25 p. [3]

Sherman, William Tecumseh. *See* **Moulton, C. W.**

Ship-owning and other Commercial Bodies for the Encouragement of the Ocean Commerce of the United States. Proceedings of the national convention, Boston, Oct. 6-8, 1880. [N.Y., 1881.] 8°. [3, *H. A. Hill, Boston.*]

Shipping. *See* **Boyd, A. C.;—Forbes, R. B.;—Hill, C. S.**

Shirley, John M. The Dartmouth College causes and the Supreme Court of the United States. St. Louis, 1879. 8°. [1]

Shrewsbury, *Mass.* Annual report of the polls, valuation and taxes for the year 1877, 80. Worcester, 1877-[80]. 8°. [3]

— Report of the assessors, 1855-57, 59-65, 67-70. Worcester, 1856-[71]. 8°. [3]

Sibley, John Langdon. Biographical sketches of graduates of Harvard University. Vol. 2. 1659-77. Camb., 1881. 8°. [1]

Sickels, Hiram E. Reports of cases in the Court of Appeals o
New York, 1879-80. Vol. 33-37. Albany, 1880-81. 5 v. 8°. (
v. 78-82.) [2]

Siderfin, Thomas. Les reports des divers special cases en le Co
le Roy, et auxy en le Co. Ba. & l'Exchequer, [1657-70]. 2e
par R. Dobyns. Lond., 1714. 2 v. in 1. f°. [2]

The 2d volume has the title "Le second part de les reports du T. Siderfin,
cases en le Court del Upper Banck, 1657-59."

Silk. *See* **Wyckoff, W.** C.

Sill, E. R. Shall we have free high schools? Extracted from "
nian" for Feb., 1881. San Francisco, 1881. 8°. 8 p. [3]

Simmons, William A. Letters and documents on file in the
partment, requesting the retention of Simmons as collector
the port of Boston, during the administration of Pres. Hayes
sm. 4°. 20 p. [3]

Sinking-funds. *See* **Browne,** G. M.; — **Poor,** H. V.

Skinker, Thomas K. Reports of cases, [1879-80]. *See* **Misso**
Court. Reports, v. 70-71.

Slafter, Edmund Farwell. The Knox manuscripts: substanc
made at the annual meeting of the New England Historic
Society, Jan. 5, 1881. Bost., 1881. 8°. 12 p. [3, *Author.*]

Slater, John S. Address to the soldiers of the army of the
especially to the surviving members of the fifth corps, contai
of the case of Gen. Fitz John Porter. Wash., 1880. 8°. 30 p.
John Porter, Morristown, N.J.]

Slavery. *See* **Ashley,** J. M.; — **Bearse,** A.; — **Ruffin, E.**; — **W**

Small pox. *See* **Providence,** *R.I. Superintendent of Health.*

Smart, James H. Books and reading for the young. Indiana
87 p. [3, *Author*]

— On the best system of schools for a state. Report of a com
National Superintendents' Association. Indianapolis, 1880.
Author.]

Smith, Adam. An inquiry into the nature and causes of the
tions. Ed. by J. E. T. Rogers. Oxford, 1869. 2 v. 8°. Por

— *See* **Farrer,** J. A.

Smith, Elbridge. Charles Hammond and academy life. *n.p.*, [
64 p. [3, *Ray G Huling, Fitchburg.*]

Smith, Franklin W. The hard times. Agricultural developm
remedy Bost., 1877. 18°. 95 p. [3]

Smith, George H. Reports, 1879-80. *See* **California.** *Suprem*
ports, v. 54-55.

Smith, Gerrit. Abstract of the argument, in the public disc
question: "Are the Christians of a given community the c
community?" In Hamilton, N.Y., April 12-14, 1847. Alb
38 p. [4]

Smith, Henry H. Constitution of the United States. *See* **U**
Congress.

Smith, Isaac W. Eulogy on William Henry Bartlett, late ass
of the Supreme Court of New Hampshire, before the alu
mouth College, June 23, 1880. Concord, 1881. 8°. 16 p. [3,

Smith, Oliver. Last will and testament of O. Smith, of H
h.t.p. [Northampton, 1844.] 8°. 24 p. [3]

Smith, Reginald Bosworth. Rome and Carthage: the Punic
[1881]. 16°. Maps. (**Cox,** *Sir* G. W., *and* **Sankey, C.,** *ed*
ancient history.) [1]

An abbreviation of his larger work on "Carthage and the Carthagini

h, Robert D., *and* **Pillsbury,** Albert E. East Boston ferries. Arguients before the legislative committee on roads and bridges, Feb., 1879. ost., 1879. 8°. 54 p. [3]

h, Samuel. Three letters on the silver question. Liverpool, 1876. 8°. 3 p. [1]

h, Samuel Francis. History of Newton, Mass., 1630–1880. Bost., 1880. 8°. 51 p. Map, portraits and illus. [1]

h, Walter Edward. The recent depression of trade: its nature, its auses, and the remedies for it. Lond., 1880. sm. 8°. [1]

h, William. Historical account of Bouquet's expedition against the hio Indians, in 1764. With preface by F. Parkman, and a translation of umas' biographical sketch of Gen. Bouquet. [*Anon.*] Cincin., 1868. . 8°. Map and illus. (**Ohio Valley** hist. ser. no. 1.) [1]

hfield, *R.I.* *See* **Steere, T.**

hsonian Institution. Annual report of the board of regents, 1878–79. Vash., 1879–80. 2 v. 8°. [3]

ntributions to knowledge. Vol. 22–23. Wash., 1880–81. 2 v. 4°. [3]

Contents.

Vol. **22.** **Jones,** J. Explorations of the aboriginal remains of Tennessee. — **Habel,** S. The sculptures of Santa Lucia Cosumalwhuapa in Guatemala, with account of travels in Central and South America. — **Rau,** C. The archæological collection of the United States National Museum; — The Palenque tablet in the United States National Museum.— **Dall,** W. H. The remains of later pre-historic man obtained from caves in the Catherina Archipelago, Alaska Territory and from the caves of the Aleutian Islands.

23. **Clark,** H. J. Lucernariæ and their allies. — **Hilgard,** E. W. The geology of lower Louisiana and the salt deposit on Petite Anse Island. — **Barnard,** J. G. Internal structure of the earth as affecting precession and nutation, being the third of the problems of rotary motion. — **Elliot,** D. G. Classification and synopsis of the trochilidæ. — **Wood,** H. C. Fever; a study in morbid and normal physiology.

iscellaneous collections. Vol. 16–21. Wash., 1880–81. 6 v. 8°. [3]

Contents.

Vol. **16.** **Tryon,** G. W., *Jr.* Land and fresh-water shells of North America. Part 4. Strepomatidæ. — **Osten Sacken,** C. R. R., *Baron* von. Catalogue of the described diptera of North America, 2d ed. — **Shakespeare,** E. O. The Toner lectures. 7. Nature of reparatory inflammation in arteries after ligature, acupressure, and torsion. — Circular relative to scientific and literary exchanges. — Business arrangements of the Smithsonian Institution. — **Elliot,** D. G. List of described species of humming birds. — List of the principal scientific and literary institutions in the United States. — List of publications of the Smithsonian Institution.

17. **Rhees,** W. J., *ed.* The Smithsonian Institution: documents relative to its origin and history.

18. — The Smithsonian Institution: journals of the board of regents, reports of committees, statistics, etc.

19. **United States.** *National Museum.* Proceedings. Vol. 1–2. 1878–79.

20. **Philosophical Society of Washington.** Bulletin. Vol. 1–3. March, 1871–June, 1880.

21. **Rhees,** W. J. James Smithson and his bequest. — **Smithson,** J. Scientific writings. — **Johnson,** W. R. Memoir on the scientific character and researches of James Smithson. — **Irby,** J. R. McD. The works and character of James Smithson. — **United States.** *Congress.* Memorial of Joseph Henry.

Bureau of Ethnology. *J. W. Powell, director.* Introduction to the study of Indian languages with words, phrases and sentences to be collected. By J. W. Powell. 2d ed., with charts. Wash., 1880. 4°. [3]

- Introduction to the study of mortuary customs among the North American Indians. By H. C. Yarrow. Wash., 1880. 4°. [3]

- Introduction to the study of sign language among the North American Indians as illustrating the gesture speech of mankind. By G. Mallery. Wash., 1880. 4°. 71, (1) p. [3]

ucker, Samuel Mosheim. The life and times of Alexander Hamilton. Phila., 1857. 12°. Portrait. [1]

ell, Thomas. A sermon, June 27, 1848, being the 50th anniversary of his ordination and instalment to the pastoral charge of the Congregational Church and Society in North-Brookfield. West Brookfield, 1848. 8°. 56 p. [1]

ow, Charles H. B. Address at the centennial celebration, of Fitchburg, [Mass.], June 30, 1864. [With other papers connected with the celebration.] Fitchburg, 1876. 8°. 36, 55 p. [1]

cial science. *See* **American Social Science Association; — Fawcett,** H., *and Mrs.* M. G.; — **National Association for the Promotion of Social Science; — Social tracts.**

Social tracts. No. 1-8. [Lond., 184-.] 12°. (Pm., v. 119.) [1]

Contents.

No. 1. Observations upon political and social reform.
2. Calculation of the result of the industry of 500 persons of the wor
3. The pull all together.
4. Man the creature of circumstances.
5. Human nature; or, The moral science of man.
6. The religion of the new moral world.
7. Outline of the rational system of society. By R. Owen.
8. (Moral series.) Address, containing an official declaration of p for practice by the congress of the Universal Community So Religionists.

Nos. 1 to 6 were published by the National Community Friendly Socie the Universal Community Society of Rational Religionists.

Socialism. *See* **Cook, J.**;—**Hubner, C. W.**;—**Kaufmann,**

Society of the Army of the Cumberland. 3d-5th, 11th re 79. Cincin., 1870-80. 4 v. 8°. Portraits. [1]

Society of the 51st Regiment Pennsylvania Veteran Volu ord of proceedings of the 1st annual reunion, Norristown, Harrisburg, 1880. 8°. [3, *Lane S. Hart, Harrisburg, Pa.*]

Soldan, L. Zeitgeist und Schule. Vortrag, gehalten in der öff ung des 10. deutsch-amerik. Lehrertages. Milwaukee, 1 [3]

Soldiers' National Cemetery Association. Oration of O. O. speech of A. G. Curtin, at the laying of the corner stone of t in the Soldiers' National Cemetery, at Gettysburg, July other exercises. Gettysburg, 1865. 8°. 60, (1) p. [3]

Soley, James Russell. Report on foreign systems of naval e **United States.** *Department of the Navy.*

Some reasons why excise tax on life-insurance companies shoul *n.t.p.* [Bost., 1881.] 8°. 2 p. [4]

Somerville city directory for 1879-80. [No. 7.] Compiled and Greenough & Co. Bost., 1879. 8°. Map. [1]

Sonnenschein, A. Elementary education at home and abroad, Arnold's general report for 1878-9. [Lond.], 1880. 12°. 24 p.

A lecture delivered at the College for Men and Women, 31st Jan., 1

Soto, Hernando *or* **Fernando de.** *See* **Jones, C. C.,** *Jr.*

Sound. *See* **Henry, J.**

South. *See* **Bryant, J. E.**;—**Hayes, J. L.**;—**Nordhoff,** E. L.

South Carolina. *Constitutional Court.* A digest of the cases r Constitutional Court of South-Carolina. Charleston, 1824. 8

— *General Assembly.* An act to alter and amend the school law Thompson, State Superintendent of Education. Columbia, 5 p. [2]

— - Acts and resolutions, 1805, 14-15, 25; Acts and joint resolu session, 1880. Columbia, 1806-81. 5 v. 8°. [1]

— - Journal of the House of Representatives, regular session, Columbia, 1868-80. 8°. [2]

— - Journal of the Senate, regular session, 1868-[69], 80. Colu 2 v. 8°. [2]

— - Reports and resolutions, regular session, 1880. Columbia, 18

— *State Superintendent of Education.* 2d-4th, 6th-8th, 10th, 12th a 1870-72, 74-76, 78, 80. Columbia, 1871-80. 8 v. 8°. [2]

The 5th and 9th reports are contained in the Reports and resolutions of the bly of South Carolina for 1873-4 and 1877-8.

— *Supreme Court.* *See* **Shand, R. W.** Reports, v. 13, 1879-80.

— *See* **Purry, J. P.**;—**Ramsay, D.**

South Danvers directory. *See* **Salem** directory.

South Hadley Falls directory. *See* **Holyoke** directory.

South Natick, *Mass.* **Historical and Natural History Soci** tution of the Society. Camb., 1870. 18°. 8 p. [3]

uthall, James C. Address. *See* **University of Virginia.**

uthborough, *Mass.* **Pilgrim Church.** Semi-centennial of the Church, [Feb. 17, 1881]. Marlboro, 1881. 8°. 16 p. [1]

uthern Aid Society. 4th annual report, 1857. N.Y., 1857. 8°. [3]

uthern Historical Society. Papers. Vol. 8. Jan.-Dec., 1880. Richmond, [1880]. 8°. [1]

wdon, Arthur John Clark. Political duties. An essay read before the Boston Young Men's Christian Union, Feb. 14, 1878. [Bost., 187-.] 8°. 21 p. [3]

ain. *See* **Amicis,** E. de; — **Coppée, H.**; — **Wallis,** S. T.

arks, Jared. *See* **Harvard College.**

aulding, Elbridge Gerry. Centennial. One hundred years of progress in banking. Address at the meeting of the Bankers' Association, at the International Exposition, Philadelphia, May 30, 1876. Buffalo, 1876. 8°. 70 p. [1]

aulding, Joseph Whitman. Reports, [1879-80]. *See* **Maine.** *Supreme Judicial Court.* Reports, v. 71.

encer, Herbert. The data of ethics. N.Y., 1880. 12°. (Synthetic philosophy, v. 9.) [1]

encer, John C. Revised statutes of New York, [1836]. *See* **New York.** *Legislature.*

encer, *Mass.* Annual report of the finances of the town from March 1, 1853-March 1, 1855, with a list of taxes assessed in 1853-54. Worcester, 1854-55. 8°. [2]

rague, Charles. An ode: pronounced before the inhabitants of Boston, Sept. 17, 1830, at the centennial celebration of the settlement of the city. Bost., 1830. 8°. 22 p. [3]

rague, Homer B. Ought text-books to be supplied gratuitously to all children in the public schools? A paper read at Massachusetts State Teachers' Association in Dec., 1878. Bost., 1879. 12°. 12 p. [3]

prague, John T. The treachery in Texas, the secession of Texas, and the arrest of the United States officers and soldiers serving in Texas. Read before the New-York Historical Society, June 25, 1861. N.Y., 1862. 8°. [3]

From the Supplementary volume of the Rebellion record.

prague, William Buell. An address delivered at West Springfield, Aug. 25, 1856, on the 100th anniversary of the ordination of J. Lathrop. With an appendix [containing the early history of the First Parish in West Springfield]. Springfield, 1856. 8°. [2]

pringfield, *Mass.* *Board of Water Commissioners.* Report, 1875-76. Springfield, 1875-76. 8°. [3]

City Council. Municipal register for 1881. Springfield, 1881. 8°. [3]

City Library Association. Annual report, 1880-81. Springfield, 1880-81. 8°. [2]

pringfield directory. The city of Springfield, Chicopee, Chicopee Falls, and West Springfield directory for 1880-81. Springfield, [1880]. 8°. Maps. [1]

pringfield republican, July, 1880-June, 1881. Springfield, 1880-81. 2 v. f°. [1]

purzheim, Johann Gaspar. *See* **Capen, N.**

ackpole, J. Lewis. Abstract of argument upon the petition in regard to further legislation affecting the Mystic sewer, 1881. Bost., 1881. 8°. 9 p. [4]

age. *See* **Gardiner,** J.; — **Irving, H.**

andish Monument Association. Standish monument on Captain's Hill, Duxbury. Charter, organization, and breaking ground. Laying corner-stone, Oct. 7, 1872. Prepared by S. M. Allen. Bost., 1873. 8°. 61 p. [3, *S. M. Allen, Duxbury.*]

Stanford, Edward. Compendium of geography and travel,
wald's Die Erde und ihre Völker. Tr. by A. H. Keane. Lo
8°. Maps and illus.

Namely.

Johnston, A. (K), *Jr.* Africa. With ethnological appendix by A.
Wallace, A. R. Australasia. With ethnological appendix by A. H. K

Stansfeld, Hamer. Money and the money market explained
rate of discount considered. With an appeal to R. Cobden
Also, the correspondence with A. Walker, on monetary
[1860]. 8°. 39 p. [1]

Stanton, *Mrs.* Elizabeth Cady, *and others, editors.* History
frage. Ed. by E. C. Stanton, S. B. Anthony and M. J.
Vol. 1. 1848–61. N.Y., 1881. 8°. [1]

Staples, Carlton A. Address at Mendon, Mass., before the Wo
Unitarian Conference, Sept. 10, 1873, on the history of the
that town. Milford, 1873. 8°. 24 p. [2]

— An historical discourse on the 150th anniversary of the orga
First Congregational Church in Providence, R.I., and th
Josiah Cotton, Nov. 1, 1878. Providence, 1879. 8°. 39 p.

Staples family. Proceedings at the dedication of a monume
Abraham Staples, of Mendon, Oct. 31, 1877. [Introductory
B. Staples; historical address, by C. A. Staples.] Provi
55 p. [1]

Stark, John. [Photograph of the ground plan for the Stark m

— [Photograph of the monument erected to the memory of Sta

Starkie family. *See* **Rylands,** J. P.

State Bar Association of Wisconsin. Report of the proc
meeting for the organization of the Association, Jan. 9, 1
1881. 8°. 44 p. [3]

State sovereignty. *See* **DePeyster,** J. W.; —**Sage,** B. J.

Staten Island, *N.Y.* *See* **Clute,** J. J.

Statistics. *See* **Kolb,** G. F., *Freiherr* von; —**Mulhall,** M. G.

Staunton, *Va.* *See* **Hotchkiss,** J.

Stearns, George L. A few facts pertaining to currency and ba
1864. 8°. 16 p. [1]

Steere, Thomas. History of Smithfield, [R.I.], 1730-1871. C
cordance with the votes of the towns of Smithfield, North S
coln and Woonsocket. Providence, 1881. 8°. [1]

Stetson, George R. The Liberian republic as it is. Bost.,
[4]

— The Southern negro as he is. By G. R. S. Bost., 1877. 8°.

Stevens, Henry. Historical collections. Catalogue of the firs
collections of rare books and manuscripts relating chiefly
and literature of America. Sold by auction, July, 1881.
[3, *Author.*]

Stevens, Thaddeus. *See* **United States.** *Congress.*

Stevenson, Robert H. [Memorial of Thomas Greely Steve
187-.] 16°. Portrait. [3, *Author.*]

Stevenson, Thomas Greely. *See* **Stevenson,** R. H.

Stewart, G. T. Christianity against the liquor crime. An
1880. 16°. 23 p. [3]

Stewart, John H. Reports of cases in the Court of Chancer
tive Court, and, on appeal, in the Court of Errors and A
Jersey, [1880–81]. Vol. 5-6. Trenton, 1880-81. 2 v. 8°.
equity reports, v. 32-33.) [2]

Stillman, William. Miscellaneous compositions, in poetry an
London, 1852. 18°. Portrait. [1]

Stock exchange. *See* **Cornwallis, K.**

Stockett, J. Shaaff. Reports, 1878-80. *See* **Maryland.** *Court of Appeals.* Reports, v. 51-53.

Stocks. *See* **Lewis,** F. A., *Jr.*

Stoddard family. *See* **Patterson,** D. W.

Stone, William Leete. Reminiscences of Saratoga and Ballston, [N.Y.]. Illus. N.Y., 1875. 16°. [1]

Stoneham directory. *See* **Wakefield.**

Story County, *Iowa.* *See* **Allen,** W. C. B., *and* **Stinchcomb, W. A.**

Stover, R. M. Howard's Practice reports in the Supreme Court and Court of Appeals of the state of New York, [1880]. Vol. 59-60. Albany, 1880-81. 2 v. 8°. [1]

Stowe, *Mrs.* Harriet (Elizabeth) Beecher. *See* **American** slavery.

Stuart, A. A. Iowa colonels and regiments: being a history of Iowa regiments in the war of the rebellion. Des Moines, 1865. 8°. 656 p. Portraits. [1]

Sturbridge, *Mass.* *See* **Clark,** J. S.

Subjects and questions pertaining to political economy, constitutional law, the theory and administration of government, and current politics. N.Y., 1881. 16°. v, 24 p. (Economic tracts, no. 3.) [3]

Suffolk County, *L.I.* *See* **Bayles,** R. M.

Suffolk County, *Mass.* *Registry of Deeds.* Suffolk deeds. Liber 1. Bost., 1880. 8°. [3]

— *See* **Hassam,** J. T.; — **Winsor,** J., *ed.*

Suffrage. *See* **Bacon,** S. T.; — **Boutwell,** G. S.; — **Frieze,** J.; — **Pierce,** E. L.; — **Russell,** C. T.; — **Stanton,** *Mrs.* E. C., *and others.*

Sullivan, John. *See* **Waterloo Library and Historical Society.**

Sullivan, William. Discourse before the Pilgrim Society, at Plymouth, 22d Dec., 1829. Bost., 1830. 8°. 60 p. [3]

Sully, James. Illusions. A psychological study. Lond., 1881. 12°. (International scientific ser., v. 34.) [1]

Sumner, Charles. Explanation in reply to an assault. A speech prepared for the United States Senate, March, 1871. Bost., 1878. 12°. 29 p. [3]

— Naboth's vineyard. Speech on the proposed annexion of San Domingo, in the Senate of the United States, Dec. 21, 1870. Wash., 1870. 8°. 16 p. [3]

— Reform and purity in government. Neutral duties. Sale of arms to belligerent France. Speech in the Senate of the United States, Feb. 28, 1872. Wash., 1872. 8°. 15 p. [1]

— *See* **Worcester.** *City Council.*

Sumner, William Graham. The argument against protective taxes. *h.t.p.*, [1881]. 8°. (19) p. [3, *Author.*]

From the Princeton review.

— Bimetallism. Article no. 18 from the Princeton review. [N.Y., 1879.] 8°. (35) p. [3, *Author.*]

— *and others.* Political economy and political science. List of books recommended for general reading, and as an introduction to special study. N.Y., 1881. 16°. 36 p. (Economic tracts, no. 2.) [3]

Sumter. [Verses published for the benefit of the South Carolina Monument Association. *Anon.*] *n.p.*, [18—]. 8°. 11 p. [3]

Sun. *See* **United States.** *Naval Observatory.*

Sunderland, *Mass.* Report of the selectmen for the year ending March, 1849-64. *n.p.*, [1849-64]. Broadside and 8°. [3, *John M. Smith, Sunderland.*]

Superior, Lake. *See* **Rottermund,** E. S., *comte* de.

Sutton, *Mass.* Annual reports of the selectmen, treasurer, overseers of the poor, and school committee, for the year ending March 5, 1860-March 4, 1864. Worcester, [1860-64]. 8°. [2]

Swampscott, *Mass.* *See* **Hopkins,** G. M.

Sweden. Bidrag till sveriges officiela statistik. Stockholm, 18

Contents.

A. Befolknings-statistik. Ny följd. 21. Statistiska central-byråns un
telse för år 1879.

B. Rättsväsendet. Ny följd. 21, 1-2. Chefens för Kongl. Justitie-Depa
dåniga embetsberättelse, 1878.

G. Fångvården. Ny följd. 21. Fångvårds-styrelsens underdåniga berätt

L. Statens jernvägstrafik. 18. Trafik-styrelsens underdåniga berättelse.
man svensk jernvägsstatistik, för år 1879. Jemte några appgifter om jernvä
utgifven af trafik-styrelsen.

Switzerland. *See* **DePeyster,** J. W.

Syracuse. *Board of Education.* 21st, 23d-26th, 28th-32d annua
71-74, 76-79. Syracuse, 1869-80. 10 v. 8°. [2]

For previous reports *see Superintendent of Public Schools.*

— *Superintendent of Public Schools.* 13th, 19th-20th annual repo
Syracuse, 1861-[68]. 8°. [2]

For continuation *see Board of Education.*

Taber, C. A. M. The causes which produce the great prevaili
ocean currents, and their effects on climate. Bost., 1881. 12°

Taine, Hippolyte Adolphe. The origins of contemporary
French revolution. Tr. by J. Durand. Vol. 1-2. N.Y.,
12°. [1]

Contents.

Vol. 1. Spontaneous anarchy. — The Constituent Assembly. — The applic
stitution.

2. The Jacobin conquest.

Talleyrand-Périgord, Charles Maurice de, *prince de Benevento*
spondence of Prince Talleyrand and King Louis XVIII. du
gress of Vienna [1814-15] (hitherto unpublished) from the
preserved in the archives of the Ministry of Foreign Aff
With a preface, *etc.*, by M. G. Pallain. N.Y., 1881. sm 8°.
Portrait. [1]

Tanner, Henry. The martyrdom of Lovejoy. An account of t
and perils of Rev. Elijah P. Lovejoy, killed by a pro-slavery m
Ill., Nov. 7, 1837. By an eye-witness. Chicago, 1881. 8°. Po

Tapestry. *See* **Hayes,** J. L.

Tappan, Eli T. On the complexity of causes: an address read
partment of higher instruction of the National Educational
at Chautauqua, 1880. *n.p.*, *n.d.* 8°. 7 p. [3, *Author.*]

Tariffs. *See* **Bigelow,** E. B.; — **Hayes,** J. L.

Tate, Joseph. Digest of the laws of Virginia, [1823]. *See* **Virg**

Taunton. *Public Library.* 15th annual report of the trustees,
ton, 1881. 8°. [3]

— - 1st supplement to the catalogue. Taunton, 1881. 8°. VIII, 6

— *See* **Atwood,** C. R.

Taunton directory and an almanac for 1861; Taunton directory
Taunton, 1861-79. 2 v. 16° and 8°. Map. [1, 3, *Augustus Ru*

By Adams, Sampson & Co., 1861; by Sampson, Davenport & Co., 1

Taxation. *See* **Ropes,** J. C.

Taylor, *Mrs.* Deborah Davis (Millett). In memoriam. Services
ration of Mrs. Taylor, at the Seaman's Bethel, June 23, 1869.
R. C. Waterston. Remarks by W. M'Donald and A. D. Me
by G. S. Noyes, June 27. Bost.], 1870. 8°. 20 p. [3, *S.*
Boston.]

Taylor, J. Stopford. Report of the health of Liverpool during
pool, 1881. 8°. 71 p. [3]

Taylor, (James Henry) Bayard. The American legend. Poe
Phi Beta Kappa Society of Harvard University, July 18,
1850. 8°. 27 p. [1]

— Poetical works. Household ed. Bost., 1880. 16°. [1]

aylor, William B. A memoir of Joseph Henry. A sketch of his scientific work. Read before the Philosophical Society of Washington, Oct. 26, 1878. 2d ed. Wash., 1880. 8°. Portraits. [2]

Extracted from the Henry memorial volume published by order of Congress.

aylor, Zachary, *Pres. of the U.S.* Sketch of the life and public services of Gen. Taylor, the people's candidate for the presidency. [*Anon.* Wash., 1848.] 8°. 32 p. [1]

efft, Benjamin F Our political parties. Bost., 1880. 18°. vii, 84 p. [1]

ehuantepec Inter-Ocean Railroad. *See* **Anderson, A. D.**

elegraphs. *See* **Ohio.**

emperance. *See* **American Temperance Society; — Dodge, W. E.; — Lees, F. R.,** *and* **Burns, D.; — Massachusetts Temperance Alliance; — Massachusetts Total Abstinence Society; — National Temperance Society; — Protestant Episcopal Church; — Stewart, G. T.; — Wood, L. L.**

empleton, *Mass.* Copy of the valuation and taxes for the year, 1857, 59, 61, 64, 68, 70, 72. Templeton, Gardner, 1861-72. 8°. [3, *P. Blodgett, Templeton, and others.*]

– Report of the selectmen, containing the expenses of the town for the year ending March, 1853-March, 1854; Feb., 1856-Feb., 1857. Fitchburg, [1853-57]. 8°. [3, *P. Blodgett, Templeton, and others.*]

– **First Congregational Church.** *See* **Adams, E. G.**

ennessee. *General Assembly.* Acts passed by the 41st General Assembly, 1879, in relation to public schools; and the circular of the State Superintendent touching the administration of the same. Nashville, 1879. 8°. 16 p. [2]

– – House journal, called session, 41st General Assembly, 1879. Nashville, 1880. 8°. [2]

– – Public school laws, including all acts passed since March 15, 1873. Nashville, 1877. 8°. 20 p. [2]

– – Senate journal, called session, 41st General Assembly, 1879. Nashville, 1880. 8°. [2]

– *Supreme Court.* *See* **Baxter, J.** Reports, 1874-76, v. 8.

– *See* **King, H. C.** The Tennessee digest of the judicial decisions, 1796-1880.

Tennessee Emigration Association, *Lowell.* Report of the committee of location. With the constitution of the colony. Lowell, 1879. 8°. 16 p. [3]

Tenney, Harriet A., *and* **Atwood, David.** Memorial record of the fathers of Wisconsin, containing sketches of the members of the constitutional conventions of 1846 and 1847-8. With a history of early settlement in Wisconsin. Madison, 1880. 8°. [3, *Hon. J. R. Berryman, State Librarian, Wisconsin.*]

Tennyson, Alfred. Complete poetical works. Author's household ed. Bost., 1881. 16°. Illus. [1]

Terminal facilities in Boston. *See* **Hamilton, E.**

Terrell, Alexander W. Cases in the Supreme Court of Texas, 1879-80. *See* **Texas.** *Supreme Court.* Cases, v. 52-53.

Terrey, Money, *pseud.* New Bedford money matters. Speech on the financial affairs of New Bedford, Sept. 10, 1858. New Bedford, 1859. 8°. 26 p. [2]

Territorial sovereignty. *See* **Black, J. S.**

Tewksbury, *Mass.* Valuation of the town, and state, county, and town tax for the year 1880. Lowell, 1881. 8°. [3]

Texas. *Board of Education.* 1st-2d biennial report, 1877-80, being the 6th-7th report from the Department of Education. Galveston, 1878-81. 8°. [2]

– – Report of the Secretary for year ending Aug. 31, 1879, including partial reports for current year to Mar. 1. *h.t.p.* [Austin, 1880.] l. 8°. 4 p. [2]

Texas, *continued.*

— *Court of Appeals.* Cases in the Court of Appeals, 1880. Rep
son & Jackson. Vol. 8–9. St. Louis, 1880–81. 2 v. 8°. [2]

— *Legislature.* General [and special] laws, regular session of t
lature, 1881. Galveston, 1881. 8°. [2]

— *Superintendent of Public Instruction.* 5th annual report, 1
1876. 8°. [2]

For continuation *see Board of Education.*

— *Supreme Court.* Cases in the Supreme Court, 1879–80. Repo
Terrell. Vol. 52–53. St. Louis, 1880–81. 2 v. 8°. [2]

— – *See* **Myer,** W. G. Digest of the Texas reports, [v. 1–2].

— *See* **Dresser,** H. E.; — **Sprague,** J. T.

Textile manufacturers' directory of the United States, 1880–81.
W. C. Wyckoff.] N.Y., [1880–81]. 2 v. 8°. [1]

Textiles. *See* **Hayes,** J. L.; — **National Association of W**
turers.

Thames Tunnel. *See* **Brunel,** *Sir* M. I.

Thaxter, Celia. Among the Isles of Shoals. With illus. B
[1]

Thayer, Christopher T. Address delivered at the dedicatio
Hall, Lancaster, June 17, 1868, by C. T. Thayer; and ode,
well. With an appendix. Bost., 1868. 8°. 71 p. [3, *H.*
caster.]

Thayer, M. Russell. The life, character, and writings of Fra
discourse before the Historical Society of Pennsylvania,
Phila., 1873. 8°. 50 p. [3]

Thayer, Nathaniel. *See* **Hill,** A.

Theology. *See* **M'Clintock,** J., *and* **Strong,** J.

Thermometer. *See* **Breck,** C.

Thomas, Benjamin Franklin. Speeches in the 2d and 3d sess
Congress, and in the vacation. Bost., 1863. 8°. [3]

Thomas, George Henry. *See* **Johnson,** R. W.; — **Matthews,**

Thompson, James W. A discourse, Barre, June 17, 1874, on
versary of the incorporation of that town. Camb., 1875. 8

— Words spoken at the obsequies of William Blackstone Wil
regiment of Massachusetts infantry, Aug. 17, 1862. Bost.,
[3, *Author.*]

Thompson, Joseph Parrish. The United States as a nation
the centennial of American independence, at Berlin, Dre
Paris, and London. Bost., 1877. 8°. [1]

Thompson, Pishey. Collections for a topographical and histo
Boston, [Eng.], and the hundred of Skirbeck, in the cou
With engravings. Lond., 1820. 8°. [1]

Thompson, Robert Ellis. Hard times and what to learn
plain talk with the working people. Phila., 1877. 8°. 41 p

Thompson, Seymour D. The liability of directors and oth
agents of corporations. Illustrated by leading cases a
Louis, 1880. 8°. xxxix, 722 p. [1]

Thompson, Zadock. History of Vermont. Burlington, 1858.

Thomson, James. [Letter] to Viscount Palmerston [on relig
abroad. Lond., 1851.] 8°. 23 p. (**Pm.,** v. 118.) [1]

Thomson, Joseph. To the Central African lakes and back:
Royal Geographical Society's East Central African Exp
With a biographical notice of Keith Johnston, portraits,
ed. Bost., 1881. 2 v. sm. 8°. [1]

Thornton, Henry. An inquiry into the nature and effect
credit of Great Britain. Phila., 1807. 8°. [1]

Thornton, William Thomas. A plea for peasant proprietors; with the outlines of a plan for their establishment in Ireland. New ed. Lond., 1874. sm. 8°. [1]

Threshing-floor, The. A critic criticised, and school-reform indorsed. Mr. Bates winnowed, and passed through the sieve; and the Boston school committee sustained. [*Anon.*] Bost., 1880. 8°. 18 p. [3]

Thurber, S. Admission to college on teacher's certificate a better method than admission on examination. A paper read April 8, 1881, before the Massachusetts Association of Classical Teachers. Syracuse, 1881. 16°. 16 p. [3, *Author.*]

Thurston, Charles Myrick. Descendants of Edward Thurston, the first of the name in Rhode Island. N.Y., 1868. 8°. 70 p. [1]

Thurston, James. A historical sketch of the Methodist Episcopal Church, Dover, N.H. Dover, 1879. 16°. 30 p. [3, *Author.*]

Thurston family. *See* **Thurston, C. M.**

Timayenis, T. T. A history of Greece to [1880]. With maps and illus. N.Y., 1881. 2 v. 12°. [1]

Tithes. *See* **Cobbett, W.**

Tobie, Edward P. A trip to Richmond as prisoner of war. Providence, 1879. sm. 4°. 48 p. (**Rhode Island Soldiers and Sailors Hist. Soc.** Personal narratives, no. 6.)

Toner, Joseph M. Contributions to the annals of medical progress and medical education in the United States before and during the war of independence. Wash., 1874. 8°. [3]

Topsfield directory. *See* **Danvers.**

Toronto Mechanics' Institute. 49th–50th annual report, 1880–81. Toronto, 1880–81. 8°. [3]

Torrens, Robert. An essay on the external corn trade. 4th ed. Lond., 1827. 8°. [1]

— On the operation of the Bank charter act of 1844, as it affects commercial credit. Lond., 1847. 8°. 40 p. [1]

Tottingham family. *See* **Gale, G.**

Tower of London. *See* **Bayley, J.**

Towne family. *See* **Hubbard, E.**

Townsend, Luther T. Fate of republics. [*Anon.*] Bost., 1880. sm. 8°. [1]

Train, Charles Russell. Argument in behalf of the remonstrants to the granting of the petition for the division of Needham, before the committee on towns, Feb. 3, 1881. Bost., 1881. 8°. 19 p. Map. [4]

Transportation. *See* **Whately, R.**

Trant, William. Six speeches on financial reform. Lond., 1874. 16°. [1]

Trask, William Blake. Some of the descendants of Lewis and Ann Jones of Roxbury, Mass., through their son Josiah and grandson James. Bost., 1878. sq. 8°. viii, 75 p. [3, *Author.*]

Traun, Otto Ferdinand, *Graf* von. *See* **De Peyster, J. W.**

Traver, Lorenzo. Burnside expedition in North Carolina. Battles of Roanoke Island and Elizabeth City. Providence, 1880. sm. 4°. 31 p. (**Rhode Island Soldiers and Sailors Hist. Soc.** Personal narratives, no. 5, 2d ser.)

Treasury of thought. *See* **Ballou, M. M.**

Trenton, *N.J.* *See* **Raum,** J. O.

Trevelyan, *Sir* Charles Edward. The Irish crisis; narrative of the measures for the relief of the distress caused by the great Irish famine of 1846–7. Lond., 1880. 8°. [1]

Reprinted from the "Edinburgh review," Jan., 1848.

Trevelyan, George Otto. The early history of Charles James Fox. N.Y., 1880. 8°. [1]

Trevett *v.* **Weeden.** *See* **Varnum, J. M.**

Tribune almanac and political register for 1881. E. McPher
N.Y., [1881]. 12°. [1]

Trinity College, *Hartford, Conn.* Catalogue of officers and stude
Hartford, 1880. 8°. [3]

— Catalogus senatus academici, [1880]. Harfordiæ, 1880. 8°. 78 p

Troup, George McIntosh. *See* **Hodgson, J.**

Trowbridge family. *See* **Chapman, F. W.**

Trow's New York city directory. Vol. 94. 1881. N.Y., [*co*
Map. [1]

Troy, *Asia Minor.* *See* **Benjamin, S. G. W.; — Schliemann, H.**

Troy, *N.Y.* *Common Council.* Report of the committee remonstra
the direct route for the eastern termination of the Erie Canal,
swer to the report of A. Campbell. Troy, 1836. 8°. 36 p. [3]

Troy and Albany County (*N.Y.*) business directory, containing
for 1850 of New York state and of each city in the Union.
& Bliss. Troy, 1852. 16°. [3, *Augustus Russ, Boston.*]

Trumbull, James Hammond. Indian names of places, etc., in
borders of Connecticut: with interpretations of some of t
ford, 1881. 8°. [1]

Tucker, William Franklin. Historical sketch of Charlestown
1876. By order of the town council. Westerly, R.I., 1877. 8°.

Tuckwell, George W. A history of the rise, progress, and dow
mighty water works of New Bedford. New Bedford, 1868. 12

Tufts College, *Medford, Mass.* Annual report of the presid
Bost., 1880. 8°. [3]

— Catalogue of the officers and students, 1880/81. Bost., [1880]. 8

— Catalogus senatus academici, et eorum qui munera et officia ge
Bost., 1880. 8°. [3]

Turkey. *See* **Dwight, H. O.; — Menzies, S.**

Tweed, Benjamin Franklin. "The public-school system a failur
to R. G. White. A paper read before the Massachusetts Teac
ation, Dec., 1880. Bost., [1880]. 16°. 15 p. [3, *Author.*]

Twenty-ninth Congress; its men and its measures. [Anon.] W
8°. 16 p. [1]

Twiss, James J. A discourse upon the history of the establish
First Parish in Carlisle, Mass., delivered Feb. 23, 1879. Low
21 p. [1]

Tyler, Albert. Bennington: the battles, 1777. Centennial celeb
A paper read before the Worcester Society of Antiquity,
With notes. Worcester, 1878. 1. 8°. 23, (21) p. Illus. [1]

Underwood, Adin B. The three years' service of the Thirty-
infantry regiment, 1862-65. And the campaigns and battles
lorsville, Beverley's Ford, Gettysburg, *etc.* Bost., 1881 [1880].
Appended is the record of the regiment, 1861–65.

Union League Club of New York. *See* **Bellows, H. W.**

Union Pacific Railroad. *See* **Poor, H. V.**

Union Railway Company. [Memorial to the city council of
with the report of the committee of the city council upon the
Gas Company, the Horse-Railroad Company, and the water-w
[Camb., 1862.] 8°. 15 p. [2]

Unitarianism. *See* **National Conference of Unitarian and o
tian Churches.**

United States. *Attorney-General.*

— Annual report, 1880. Wash., 1880. 8°. [4]

— Official opinions. Ed. by A. J. Bentley. Vol. 15-16. Wash., 18

Bureau of Education.

— Circular of information, Nov., Dec., 1871; Jan., Feb., June, 1
1871-72. 8°. [3]

nited States. *Bureau of Education, continued.*

Contents.

Nov. 1871. **Orcutt, H** Methods of school discipline. — Dec. 1871. **Van Bokkelen, L.** Compulsory education. — Jan. 1872. **Jacobson, H.** German and other foreign universities. — Feb. 1872. **Francis, J. M.,** *and others.* Reports on the systems of public instruction in Greece, the Argentine Republic, Chili, and Ecuador, with statistics of Portugal, and an official report on technical education in Italy. — June, 1872. **Pearne, T. H.** Education in the British West Indies.

— *Same.* No. 2-7. 1880. Wash., 1880-81. 8°. [3]

Contents.

No. 2. **National Education Association.** Proceedings of the department of superintendence, Washington, Feb. 18-20, 1880.
3. **Wilcox, S. M.** Legal rights of children.
4. **Clark, T. M.** Rural school architecture.
5. **Hulbert, H. W.** English rural schools.
6. **Clarke, F. W.** Report on the teaching of chemistry and physics in the United States.
7. **March, F. A.** The spelling reform.

— *Same.* No. 1-3. 1881. Wash., 1881. 8°. [3]

Contents.

No. 1. **Poole, W. F.** Construction of library buildings. 2. **White, E. E.** The relation of education to industry and technical training in American schools. 3. **National Educational Association.** Proceedings of the department of superintendence, 1881.

— Comparative statistics of elementary education in fifty principal countries. [Wash , 1881.] Broadside. [3]

— Educational conventions and anniversaries during the summer of 1876. Wash., 1876. 8°. 14 p. [3]

— Educational tours in France. Wash., 1880. 8°. 4 p. [3]

— Fifty years of freedom in Belgium, Education in Malta, 3d International Geographical Congress at Venice in 1881, Illiteracy and crime in France, School savings banks, and Education in Sheffield. Wash., 1881. 8°. 8 p. [3]

— The Indian school at Carlisle Barracks. Wash., 1880. 8°. 5 p. [3]

— Industrial education in Europe. Wash., 1880. 8°. 9 p. [3]

— Library aids. [By S. S. Green.] Wash., 1881. 8°. 10 p. [3]

— Manual of the common native trees of the northern United States. [By G. Vasey.] Wash., 1877. 8°. 23 p. [3]

— Progress of western education in China and Siam. Wash., 1880. 8°. 13 p. [3]

— Report of the Commissioner, 1878-79. Wash., 1880-81. 2 v. 8°. [3]

— Report on school architecture and plans for graded schools. Wash., 1870. 8°. [3]

— Vacation colonies for sickly school children. Wash., 1880. 8°. 4 p. [3]

Bureau of Navigation.

— Tables of Eunomia, by E. Schubert. Computed for the American ephemeris and nautical almanac. Wash., 1866. 4°. 69 p. [3]

— Tables of Mercury, for the use of the American ephemeris and nautical almanac. By J. Winlock. Wash., 1864. 4°. 10, 50 p. [3]

— Telegraphic determination of longitudes on the east coast of South America, embracing the meridians of Lisbon, Madeira, St. Vincent, *etc.*, with the latitude of the several stations, by F. M. Green, C. H. Davis, and J. A. Norris, 1878-79. Wash., 1880. 4°. 87 p. Plates. [3]

Bureau of Statistics.

— Annual report of the Chief of the Bureau on the commerce and navigation of the United States, 1877-78. Wash., 1878-79. 2 v. in 3. 8°. [3]

— Quarterly reports of the Chief of the Bureau, showing the imports and exports of the United States for the four quarters of the fiscal year ended June 30, 1880. Wash., 1880. 8°. [3]

— Summary statement of the imports and exports of the United States for the month ended Aug., 1880-June, 1881. [No. 2-12. 1880-81. Wash., 1881.] 4°. [3]

United States, *continued.*

Census Bureau.

— Census bulletin. No. 1-267. Wash., 1880-81. 4°. [3]

— Extra census bulletin. Report on the cotton productio
By E. W. Hilgard. Wash., 1881. 4°. iv, 99 p. [3]

— - Statistics of life insurance. [Wash., 1881.] 4°. 73 p. [3]

— - Tables, with annotations, showing the system of cou
jurisdiction in the United States. By F. H. Wines. Wa
p. [3]

Centennial Commission.

— Acts of Congress. Rules and regulations. Description of
Phila., 1875. l. 8°. 52, (1) p. [3]

Circuit and District Courts.

— *See* **Federal** reporter, v. 1-6.

— (*1st circuit.*) *See* **Clifford, W. H.** Reports, 1869-78, v. 4.

— (*2d circuit.*) *See* **Blatchford, S.** Reports, [1878-80], v. 15-1

— (*4th circuit.*) *See* **Hughes, R. W.**

— (*5th circuit.*) *See* **Woods, W. B.** Cases, [1877-79], v. 3.

— (*8th circuit.*) *See* **Dillon, J. F.** Cases, [1878-79]; — **M'Crar**
[1880].

Coast and Geodetic Survey. C. P. Patterson, Superin

— Catalogue of charts, 1880. Wash., 1880. sm. 4°. 45 p. [3]

— Methods, discussions, and results. Meteorological researc
of the coast pilot. Part 2. Wash., 1880. 4°. 95 p. Plates

Contents.

Part 2. Cyclones, water-spouts and tornadoes. Appendix no. 10, repo

— Report of the Superintendent, 1877. Wash., 1880. 4°. [3]

Commission of Fish and Fisheries.

— Report of the Commissioner, 1878. [Part 6.] Wash., 1880.

Commissioner of Indian Affairs.

— Annual report, 1880. Wash., 1880. 8°. [3]

Commissioners to the Paris Universal Exposition,

— Reports. Wash., 1880. 5 v. 8°. Illus. [3]

Contents.

Vol. 1. Report of the Commissioner-General, with accompanying pa
of exhibitors and awards.
2. Fine arts, education, wood carving, textile fabrics.
3. Iron and steel, ceramics and glass, forestry, cotton.
4. Chemical processes, mining industries, steam and gas engines, ma
tools, clocks and watches, railway apparatus.
5. Agricultural implements, agricultural products, live stock, horticul

Comptroller of the Currency.

— Annual report, 1880. Wash., 1880. 8°. [3]

Congress.

— Adulteration of food. Report [from] the committee on epi
n.t.p. [Wash., 1881.] 8°. 20 p. [3, *George T. Angell, Bosto*

— Congressional directory. Wash., 1878-81. 8°. [3, *Hon. G.*
lem, Hon. G. F. Hoar, Worcester, etc.]

Namely.

30th Congress, 2d session. — 45th Congress, 3d session, 1st ed. — 46th C
2d-3d ed. — 3d session, 1st-2d ed.
Compiled by B. P. Poore, 1878; by F. A. Richardson, 1879-80.

— Constitution of the United States, with the amendments;
son's Manual of parliamentary practice, the standing rules
conducting business in the House of Representatives, th
force at the close of the 43d Congress, *etc.* Compiled by
4th ed. Wash., [1880]. 8°. [3, *Hon. George D. Robinson, Ch*

— General index of the journals of 1st-10th Congress, 178
Ordway. Wash., 1880. 4°. [3, *Albert Ordway, Washington.*

United States. *Congress, continued.*

— A memorial of Joseph Henry. Wash., 1880. l. 8°. Portrait. [3, *Hon. Leopold Morse, Boston.*]

Containing addresses in Congress, memorial proceedings of societies, *etc.*

— Memorial addresses on the life and character of Thaddeus Stevens, in the House of Representatives, Dec. 17, 1868. Wash., 1869. 8°. 84 p. [3]

— Raising of money to be used in impeachment. [Report of B. F. Butler from the select committee of the managers of impeachment.] *n.t.p.* [Wash., 1868.] 8°. 48 p. [1]

— The regulation and improvement of the civil service. [Report of the committee to examine the several branches of the civil service.] Wash., 1881. 8°. 46 p. [3]

— Report on the general index of the journals of Congress. [By A. Ordway.] Wash., 1879. 4°. 40 p. [3, *Albert Ordway.*]

— Statutes, 2d-3d session, 46th Congress, 1879-81. Wash., 1880-81. 2 v. l. 8°. [1, 3, *Hon. George B. Loring, Salem.*]

— *See* **Twenty-ninth** *Congress.*

44th Congress.

— 2d session. Dec. 1876-March 1877.
Reports of committees of the Senate. Vol. 5, part 2. No. 703, part 2. 8°. [2]

45th Congress.

— 2d session. Dec. 1877-June 1878.
Senate miscellaneous documents. Vol. 3. No. 49. 8°.
Executive documents. Vol. 9, 17. No. 1, part 5, v. 2, nos. 74-101 (except 89 and 90). 2 v. 8°.
House miscellaneous documents. Vol. 2, no. 31. 8°.

— 3d session. Dec. 1878-March 1879.
Journal of the Senate. 8°.
Journal of the House. 8°.
Senate documents. Vol. 1, 3, 5. Nos. 1-12, 14-48, 58. 2 v. 8°, 1 v. 4°.
Reports of committees of the Senate. Nos. 547-869. 4 v. 8°.
Senate miscellaneous documents. Vol. 1, 3-4. Nos. 1-30, 32-81. 3 v. in 4. 8°.
Executive documents. Vol. 1-9, 11-18. Nos. 1-47, 49-108. 16 v. 8°, 1 v. 4°.
Reports of committees of the House. Nos. 1018 (45th Cong., 2d sess.) and nos. 1-291. 2 v. 8°.
House miscellaneous documents. Nos. 1-34. 5 v. 8°.

46th Congress.

— 2d session. Dec. 1879-June 1880.
Journal of the House of Representatives, 1879. Wash., 1880. 8°. [3]

Court of Claims.

— *See* **Nott, C. C.,** *and* **Hopkins, A.** Cases, 1877-79, v. 13-15.

Courts.

— *See* **Reporter**; — **United States digest.**

Department of Agriculture.

— Report of the Commissioner, 1879. Wash., 1880. 8°. Plates. [3]

— Report upon forestry, [1877]. By F. B. Hough. Wash., 1878. 8°. [3]

— *Same.* Vol. 2. [1878-79.] Wash., 1880. 8°. [3]

— Special reports, [1877-81]. No. 1-38. Wash., 1877-81. 8°. [3]

Contents.

No. 1. Statement showing the condition and prospects of the cane-sugar industry in the United States. — 2. Report upon the condition of crops; also, statement of the international wheat supply, and our wheat exports, with foreign crops and prices — 3. **Jones, A. C.** Thea viridis, or Chinese tea plant, and the practicability of its culture and manufacture in the United States; also, remarks on the cultivation of the coffee plant. — 4. Cultivation of the fig and date palm. — 5-10. Report on the condition of crops, June, 1878-Jan. 1879. — 11. **Riley, C. V.** The silkworm; instructions for the production of silk. — 12. Investigation of diseases of swine, and infectious and contagious diseases of domestic animals. — 13-17. Report upon the condition of crops, *etc.*, April, June-Sept., 1879. — 18. **Saunders, W.** Tea

United States. *Department of Agriculture, continued.*

culture as a probable American industry. — **19-20.** Report upon the co
Nov., Dec., 1879. — **21.** Report upon the numbers and prices of farm animal
gious diseases of domesticated animals, continuation of investigation. —
upon the condition of crops, *etc.*, April, June-Aug., 1880. — **26. McMurtri**
the culture of sumac in Sicily, and its preparation for market in Europe
States. — **27.** Report upon the condition of crops, Sept., 1880. — **28. McM**
port on the culture of the sugar beet and the manufacture of sugar therefro
the United States. — **29-30.** Report upon the condition of crops, Nov.-Dec.
man, C. P. Contagious pleuro-pneumonia; 3d report. — **32.** Report upon
crops and live stock, April, 1881 — **33. Collier,** P. Report of analytical
done on sorghum and cornstalks by the chemical division of the department
— **34.** Contagious diseases of domesticated animals, continuation of inv
Comstock, J. H. Report on insects injurious to sugar cane — **36. M**
Report upon statistics of grape culture and wine production in the United
37-38. Report upon the condition of crops, June-Aug., 1881.

Department of the Interior.

— **Annual report of the Secretary, 1879-80. Wash., 1879-80. 4 v.**

— **Letter from the Secretary transmitting a preliminary rep
population, industry, and resources of Alaska. [Wash., 188
[3]**

Department of the Navy.

— **Annual report of the Secretary, 1879-80. Wash., 1880. 2 v. 8°**

— **Narrative of the second Arctic expedition made by C. F.
Ed. by J. E. Nourse. Wash., 1879. 4°. l, 644 p. Portrai
illus. [3]**

Appendixes contain astronomical and meteorological observations, The
bisher Bay and Field Bay, by B. K. Emerson. Report of M. McDougall on
ture at Dundee, *etc.*

— **Register of the officers of the navy, Jan. 1, 1880, July 1,
1880. 8°. [3]**

— **Report on foreign systems of naval education, by J. R. So
1880. 8°. [3]**

— **Report on the training systems for the navy and mercant
England, and on the naval training system of France. By
wick. Wash., 1880. 8°. [3]**

Department of State.

— **American pork. Result of an investigation made under au
Department of State. Wash., 1881. 8°. 49 p. [3]**

— **Commercial relations of the United States. Reports from t
the United States on the commerce, manufactures, *etc.*, of
districts. No. 1-8. Oct., 1880-June, 1881. Wash., 1880-81. 8**

— **French Universal Exposition for 1867. Official correspon
subject, containing general regulations, classification of
Wash., 1865. 4°. 28 p. [3]**

— **International Monetary Conference held in Paris, Aug., 18
auspices of the Ministry of Foreign Affairs of France. [Pr
port and monetary documents.] Wash., 1879. 4°. xiv, 918 p**

A large paper copy of the edition already in the Library.

— **Papers relating to the foreign relations of the United States
nual message of the president, Dec. 6, 1880. Wash., 1880. 8°**

Department of the Treasury.

— **Annual report of the Secretary on the state of the finances, 18
1879-80. 2 v. 8°. [3]**

— **Annual report of the Treasurer, 1880. Wash., 1880. 8°. [4]**

— **Letter from the Acting Secretary in reply to a resolution of
Representatives in relation to the public indebtedness of fo
ments. Wash., 1881. 8°. 51 p. [3]**

— **Letter from the Secretary, transmitting the report of the
customs [on nominations and appointments in the New
House]. *h.t.p.* [Wash., 1881.] 8°. 25 p. [3]**

— **Statistical abstract of the United States. 2d-3d number.
nance, coinage, commerce, immigration, *etc.* Wash., 1880-81**

nited States, *continued.*

Department of War.

A digest of opinions of the Judge Advocate General of the army, with notes, by Bvt. Col. W. Winthrop. [Sept. 1862–Dec. 1875.] Wash., 1880. 8°. xv, (1), 606 p. [3]

Annual report of the Secretary, 1879. Wash., 1879. 4 v. in 6. 8°. [3]

Manual for army cooks. Wash., 1879. 16°. [3]

Official army register, Jan., 1881. Wash., 1881. sm. 8°. [3]

The war of the rebellion: a compilation of the official records of the Union and Confederate armies. By R. N. Scott. Series 1. Vol. 1. Wash., 1880. 8°. v, 752 p. [3, *Geo. F. Hoar, Worcester.*]

See **Hamersly,** T. H. S.

Director of the Mint.

— Annual report, 1880. Wash., 1880. 8°. [3]

District Courts. (New York.)

— *See* **Benedict,** R. D., *and* B. L. Reports, [1877–78], v. 9.

Engineer Department.

— Annual report of the Chief of Engineers, 1879–80. Wash., 1879-80. 6 v. 8°. [3]

— Professional papers. No. 18. Report of the geological exploration of the 40th parallel, made under the direction of A. A. Humphreys, by C. King. Vol. 7. Wash., 1880. 4°. [3]

Contents.

Vol. 7. **Marsh,** O. C. Odontornithes: a monograph on the extinct toothed birds of North America.

Entomological Commission.

— 1st–2d report, 1878-79, relating to the Rocky Mountain locust and the Western cricket. [By C. V. Riley, A. S. Packard, Jr., and C. Thomas.] With maps and illus. Wash., 1880. 2 v. 8°. [3]

General Land Office.

— Annual report of the Commissioner, 1878–79. Wash., 1878–79. 2 v. 8°. [3]

— Circular showing the manner of proceeding to obtain title to public lands under the pre-emption, homestead, timber culture, and other laws. Oct. 1, 1880. Wash., 1880. 8°. 94 p. [3]

— Rules of practice in cases before the United States District Land Offices, the General Land Office, and the Department of the Interior. Approved Dec. 20, 1880. Wash., 1880. 8°. 14 p. [3]

Geological and Geographical Survey of the Territories.
F. V. Hayden, geologist-in-charge.

— Bulletin. Vol. 5, no. 4; v. 6, no. 1. Wash., 1880-81. 8°. [3]

— Miscellaneous publications, no. 12. Wash., 1880. 8°. Illus. [3]

Contents.

No. 12. **Allen,** J. A. History of North American pinnipeds, a monograph of the walruses, sea-lions, sea-bears and seals of North America.

— Report. Vol. 1-2; 5, part 1; 6. Wash., 1873–74. 4 v. 4°. [3]

Contents.

Vol. 1. **Leidy,** J. Contributions to the extinct vertebrate fauna of the Western territories.
2. **Cope,** E. D. Vertebrata of the cretaceous formations of the West.
5. Part 1. **Thomas,** C. Synopsis of the acrididæ of North America.
6. **Lesquereux,** L. Contributions to the fossil flora of the Western territories. Part 1. The cretaceous flora.

Geological Surveys.

— *See* **Prime, F.,** *Jr.*

Government Hospital for the Insane.

— By-laws, etc. Sept., 1855. Wash., 1855. 8°. 23 p. [3]

— Operations of the hospital, being the 1st–[3d], 11th–25th annual report of the board of visitors, 1856–58, 65–80. Wash., [1856]–80. 8°. [3]

The title-pages vary as follows: 1858, "Report of the board of visitors;" 1865/6-68, "11th-13th annual report of the board of visitors, and the 14th-16th annual report of the Superintendent of construction;" 1877-79, "Annual report of operations, being the 22d-25th annual report of the board of visitors."

United States. *Government Hospital for the Insane, continued*

— Report of the superintendent, [1855]. Wash., [1855]. 8°. [3]

Judge Advocate General.

— *See* **United States.** *Department of War.*

Life-Saving Service.

— Annual report of operations, 1880. Wash., 1880. 8°. [3]

Light-House Board.

— List of light-houses, lighted beacons, and floating lights on Gulf, and Pacific coasts of the United States. Wash., 1877.

— Report of a tour of inspection of European light-house e made in 1873, by Maj. G. H. Elliot. Wash., 1874. 8°. Plate

Marine-Hospital Service.

— Annual report of the Supervising Surgeon-General, 1880. V [3]

Naval Observatory.

— Astronomical and meteorological observations made durin Davis, Superintendent. [Vol. 23] Wash., 1880. 2 v. 4°.

— Reports on the total solar eclipses of July 29, 1878, and Wash., 1880. 4°. Plates. (Washington observations for 18 3.) [3]

Ordnance Department.

— Annual report of the Chief of Ordnance, 1880. Wash., 1880.

— Report on foreign life-saving apparatus, by D. A. Lyle. V Plates. [4]

— Tables of Melpomene, by E. Schubert. Computed for ephemeris and nautical almanac. Wash., 1860. 4°. 80 p.

Patent Office.

— Alphabetical lists of patentees and inventions for the half ye July-Dec., 1880. [Wash., 1880-81.] 2 v. l. 8°. [3]

— Official gazette. Vol. 17-18. Wash., 1880-81. 2 v. l. 8°. [3]

— Report of the Commissioner of Patents, 1859, v. 1-2; 1864, 1, 3; 1867, v. 2-3; 1868, v. 1-4; 1869, v. 4; 1871, v. 3 ; Annu Wash., 1860-79. 14 v. 8°. [3]

— Rules of practice in the Patent Office, revised Sept. 1, 1880 8°. 91, (1) p. [3]

— Specifications and drawings of patents issued June-Nov., 1880. 6 v. l. 8°.

— *See* **Rice, D. H.,** *and* L. C. Digest of decisions, 1869-80.

Post-Office Department.

— Annual report of the Postmaster-General, 1879-80. Wash., 8°. [3]

President.

— *See* **Field, D. D.; — Parker, J.; — Presidential** counts.

Revenue Marine Service.

— Report of the cruise of the Corwin in the Arctic Ocean, by 1880. Wash., 1881. 8°. 71, (1) p. [3]

— Report upon Alaska and its people, by G. W. Bailey. V 52 p. [3]

Signal Service.

— Annual report of the Chief Signal-Officer, 1879. Wash., 1880.

Superintendent of the Yellowstone National Park.

— Report, 1879; Annual report, 1880. By P. W. Norris. Was Map and illus. [3]

Supreme Court.

— *See* **Otto, W. T.** United States reports, v. 101-103, 1879-80.

United States, *continued.*

Surgeon-General's Office.

— **Index-catalogue** of the library of the Office. Authors and subjects. Vol. 1-2. Wash., 1880-81. 2 v. l. 8°. [3]

Contents.

Vol. 1. A-Berlinski. 2. Berlioz-Cholas.

Works about the United States.

— *Commerce.* *See* **Hill,** C. S.; — **Hill,** H. A.

— *Description, etc.* *See* **Bigelow,** T.; — **Holyoake,** G. J.

— *Education.* *See* **Hazeltine,** M. W.; — **Porter,** N.

— *Finance.* *See* **Gholson,** W. Y.; — **Kelly,** W. D.; — **Knickerbocker,** *pseud.*; — **Sherman,** J.; — **Ward,** D.

— *Government and Politics.* *See* **Clark,** C. C. P.; — **Dwight,** T. W.; — **Elmes,** W.; — **Houghton,** W. R.; — **McPherson,** E.; — **Montgomery,** Z.; — **Phillips,** W.; — **Sage,** B. J.; — **Tefft,** B. F.

— *History.* *See* **Bryant,** W. C., *and* **Gay,** S. H.; — **Ludewig,** H. E.; — **Magazine** of American history; — **Schouler,** J.; — **Thompson,** J. P.

— - (*Colonial period.*) *See* **Lodge,** H. C.; — **Lucas,** S.

— - (*American revolution.*) *See* **Allen,** P.; — **Fisher,** E.

— - (*Civil war.*) *See* **Bright,** J.; — **Drake,** J. M.; — **McClure,** A. K.; — **McPherson,** E.; — **Rhode Island Soldiers and Sailors Historical Society**; — **Ropes,** J. S.; — **United States.** *Department of War.*

— *Jurisprudence.* *See* **Curtis,** B. R.; — **Lewis,** F. A., *Jr.*; — **Miller,** W. E., *and* **Field,** G. W.; — **Parker,** J.

United States army and navy journal. Vol. 17. N.Y., [1880]. f°. [1]

United States Brewers' Association. 9th-20th annual Brewers' Congress [or Convention], 1869-80. N.Y., [1869]-80. 8°. [3, *Henry H. Rueter, Boston.*]

The titles vary.

— Report of the Commissioners appointed by the Associations to the United States Revenue Commission on the taxation and manufacture of malt liquors, in Great Britain and Europe. Phila., 1866. 8°. 48 p. [3, *H. H. Rueter.*]

United States business directory. *See* **Zell's** United States business directory.

United States digest. By J. E. Hudson and G. F. Williams. New series. Vol 10. Annual digest for 1879. Bost., 1880. l. 8°. [1]

University of California, *Berkeley, Cal.* 7th annual re-union of the Alumni Association, June 4, 1879. *n.p.*, [1879]. 16°. (14) p. [2]

— Bulletin. Special announcement to preparatory schools. *n.p.*, [1881]. 8°. 5 p. [3]

— Library bulletin. No. 1-2. Sacramento, 1880-[81]. 8°. [3]

Contents.

No. 1. Supplement to the report of the board of regents.
2. Notes on library progress and description of the Bacon art and library building.

— Programme of thesis reading in the College of Letters, May 25, 1880. *n.p.*, 1880. 8°. (7) p. [3]

— Register of the University, 1870/71, 1874/5, 80/81. Oakland, Berkeley, 1870-81. 8°. [3]

— Report of a committee from the Alumni Association on the University. [Oakland, 1878.] 8°. 16 p. [3]

— Report of the regents of the University, 1880. Sacramento, 1880. 8°. [3]

— Reports to the president from the Colleges of Agriculture and the Mechanic Arts. Sacramento, 1877. 8°. 80 p. [3]

— *College of Agriculture.* Report of the professor in charge to the board of regents, being a part of the report of the regents of the University, 1880. Sacramento, 1881. 8°. [3]

University of California. *College of Agriculture, continued.*

— - Supplement, no. 1, to the report of the board of regents. S
1880. 8°. [3]

University of Michigan. Catalogue of the officers and students,
Arbor, 1862. 8°. [4]

University of Minnesota. Annual report of the board of re
[With the 2d annual report of the Geological and Natural Hist
of Minnesota.] Saint Paul, 1874. 8°. [2]

— Calendar, 1880/81. Minneapolis, 1881. 8°. [3]

University of the State of Missouri. Annual announcement,
catalogue of officers and students, 1867. Columbia, 1867. 8°. [

— Report by the curators, containing catalogue, announcement
Jefferson City, 1872. 8°. [4]

University of Vermont. Catalogue of the officers and studen
Burlington, 1880. 8°. [3]

University of Virginia. Annual report of the board of visitors,
mond, 1879. 8°. [3]

— Catalogue of the officers and students, 55th-57th session, 1878/9-8
mond, 1879-81. 8°. [3]

— Introductory lecture, by W. M. Fontaine: with a short acc
Lewis Brooks' Museum of Natural History. Charlottesville,
48 p. [3]

— Law catalogue, 56th session, 1879-80. [Richmond, 1880.] 8°. [3

— Opening of the Lewis Brooks Museum, June 27, 1878. Addre
age in the world, by J. C. Southall. With introductory remar
H. Stuart. Richmond, 1878. 8°. 58, (2) p. [3]

Upton, *Mass.* *See* **Wood,** B.

Useful arts. *See* **Bullock,** A. H.

Utah. *Legislative Assembly.* Laws of the territory, 24th session,
Lake City, 1880. 8°. [2]

Uxbridge, *Mass.* Report of the selectmen for the year ending F
n.p., [1857]. 8°. [3]

— Valuation of the town for the year 1880. Uxbridge, 1880. 8°. [3

Van den Berg, C. P. J. *See* **Berg.**

Vanderbilt, Gertrude Lefferts. The social history of Flatbush,
manners and customs of the Dutch settlers in Kings County.
12°. [1]

Van Ness, Edward. A digest of the laws of New York and Ne
on the solemnization of marriage, dower, divorces, and the a
ment and attestation of deeds and wills. Hartford, 1877. 8°.

Varnum, James M. The case, Trevett against Weeden: on co
refusing paper bills in payment for butcher's meat, in market,
specie. Also, the case of the judges of [the] Court for dism
complaint. Providence, 1787. 8°. iv, 60 p. [1]

Vermilye, A. G. A discourse delivered at Newburyport, Mas
1856, on the 100th anniversary of the building of the First P
Church. Newburyport, 1856. 8°. 74 p. [2]

Vermont. *Board of Commissioners for Common Schools.* Report, 1
stock, 1828. 12°. [2]

— *Board of Education.* 1st annual report, 1857. Ludlow, 1857. 8°.

— *General Assembly.* Acts and laws, 1805, 07. Windsor, 1805-[07].

The volume for 1805 is imperfect, pp. 41-48 missing.

— - Acts and resolves, [6th] biennial session, 1880. Rutland, 1881.

— - Journal of the Senate, 1849. Burlington, 1849. 8°. [2]

— - [Legislative documents, 1880.] Montpelier, 1880. 8°. [2]

The documents are separately bound.

Vermont. *General Assembly, continued.*

— — State officers' reports for 1879-80. Montpelier, 1880. 8°. [2]

— — Statutes passed Feb.-March, 1787. Windsor, 1787. 1. 8°. [1]

— — Statutes of the state of Vermont; revised and established by authority, 1787, including those passed since that period until 1791. Bennington, 1791. 8°. [1]

— *Governor and Council.* Records. Vol. 8. [1831-36] Ed. by E. P. Walton. Montpelier, 1880. 8°. Portrait and map. [2]

— *Railroad Commissioner.* Biennial report, 1871/2, 75/6-77/8. Montpelier, Rutland, 1872-78. 8°. [2]

— *Secretary of State.* Joint rules, rules and orders of the Senate and House of Representatives and of the State Library, and legislative directory, biennial session, 1880. By G. Nichols. [Rutland], 1880. 18°. [2]

— — 21st report relating to the registry and returns of births, marriages and deaths, 1877. Prepared under the direction of G. Nichols. Montpelier, 1880. 8°. [2]

— *State Board of Agriculture, Manufactures and Mining.* 1st annual report, 1872; 2d-3d biennial report, 1873-4 — 75-6. Montpelier, Rutland, 1872-76. 3 v. 8°. [2]

1st-2d report by P. Collier; 3d, by H. M. Seely. For continuations *see Superintendent of Agricultural Affairs.*

— *State Geologist.* Report, [1872-76]. (**Vermont.** *State Board of Agriculture.* 1st-3d report.)

— *State Superintendent of Common Schools.* 1st-2d, 6th annual report, 1846-47, 51. Montpelier, St. Albans, [1846]-51. 8°. [2]

— *State Superintendent of Education.* 26th Vermont school report, 1880. Rutland, 1880. 8°. [2]

— *Superintendent of Agricultural Affairs.* 6th report upon Vermont agriculture, by J. B. Mead. Montpelier, 1880. 8°. [2]

For preceding reports *see State Board of Agriculture, etc.*

— *Supreme Court.* Appeal in chancery. J. R. Langdon et al. *vs.* The Vermont & Canada Railroad Co. et als. Opinion of the Court, by H. E. Royce. *n.p.*, [1880] 8°. 56 p. [2]

— — Reports of cases, [1879-80]. By J. W. Rowell. Vol. 52. New series, v. 8. Montpelier, 1880. 8°. [2]

— *See* **Thompson, Z.**

Vermont and Canada Railroad Company. Annual statement to the stockholders, 1878. Haverhill, 1878. 8°. [4]

— *See* **Phelps, E. J.**; — **Vermont.** *Supreme Court.*

Vermont Central Railroad Company. The Vermont Central and Vermont and Canada Railroads. Report of trustees and managers, and action of the stock and bond holders, Boston, Oct. 2, 1872. Bost., 1872. 8°. 39 p. Map. [4]

Vermont Historical Society. Addresses before the Society, in the Representatives' Hall, Montpelier, Oct. 16, 1866. Montpelier, 1866. 8°. 72 p. [3]

Contents.

Edmunds, G. F. Life, character and services of Solomon Foot. — **White,** P. H. Jonas Galusha, the 5th governor of Vermont. — **Rankin,** J. E. Sources of New-England civilization.

— Constitution and by-laws, with act of incorporation and a catalogue of officers and members. Woodstock, 1860. 8°. 16 p. [3]

— Proceedings, 21st annual meeting, Oct. 1860; [3d] special meeting, Jan. 1861; 22d annual meeting, Oct. 1861; [5th] special meeting, Jan. 1862; [6th special] meeting, July, and [23d annual] meeting, Oct. 1862; Oct. and Nov. 1870; Oct. 1880. Burlington, St. Albans, Rutland, *etc.*, 1860-80. 8°. [3]

The proceedings for 1870 contain a memorial address on the life and character of the Hon. Charles Marsh, by J. Barrett.

Vernon, Thomas. Diary of T. Vernon, a loyalist banished fr by the Rhode Island General Assembly in 1776. With no Rider. Added, the Vernon family and arms, and the geneal ard Greene, of Potowomut. Providence, 1881. sm. 4°. (Rh hist. tracts, no. 13.) [1]

Verplanck, Gulian Crommelin. *See* **Bryant, W. C.**

Veterans' National Committee. Our soldiers and sailors: wh and did on the 10th anniversary of the battle of Antietam, Penna., Sept. 17-18, 1872. By S. W. Curriden. N.Y., 1872. 8

Victoria. *See* **Hayter, H. H.**

Vienna. Congress, 1814-15. *See* **Talleyrand-Périgord, C. M.** *Benevento.*

Vincent, Frank, *Jr.* Norsk, Lapp, and Finn; or, Travel traci far north of Europe. N.Y., 1881. 12°. Map and illus. [1]

Vincentown, *N.J.* *See* **Chamberlin, W.**

Virginia. *Convention,* 1850-51. Documents containing statistic be printed by the convention. Richmond, 1851. 8°. [1]

— - Journal, acts and proceedings. [With an appendix.] Ric 8°. [1]

Appended to the Journal are the Virginia Bill of rights and New constitutio

— *Courts.* *See* **Hall, E.** Digested index to Virginia reports.

— *General Assembly.* An exact abridgement of all the public acts use, Jan. 1, 1758. By J. Mercer. Glasgow, 1759. 8°. [1]

— - Acts passed at a General Assembly, 1777, 91-93, 1813-[14]. [1777]-1814. 4 v. in 2. f°. and 1. 8°. [1]

The title-page is missing for 1791, and the index for 1793.

— - Abridgment of the public permanent laws of Virginia. dolph.] Richmond, 1796. sm. 4°. [1]

— - A digest of the laws of Virginia. By J. Tate. Richmond, 1

With MS. notes.

— - Digest of the laws of Virginia. By J. M. Matthews. Richm 2 v. 8°. [1]

— - Acts, extra session, 1865. Richmond, 1865. 8°. [1]

— - Communications from several states on the resolutions of th of Virginia, respecting the alien and sedition laws: also instr the General Assembly to their senators in Congress and the committee [on] the proceedings of sundry other states in a resolutions of the 21st Dec., 1798. Richmond, [1800]. sm. 8°.

— - Debates in the House of Delegates upon the alien and se Richmond, 1798. 8°. [1]

— - Resolutions of Virginia and Kentucky, penned by Madison a in relation to the alien and sedition laws; and the debates ings in the House of Delegates of Virginia on the same, Dec. mond, 1835. 8°. [1]

— - The school law of Virginia. Richmond, 1878. 8°. 46 p. [2]

— *Railroad Commissioner.* 2d-4th annual report, [1878-80]. Ric 81. 3 v. 8°. [2]

— *Revisors of the Code,* 1849. [3d-4th] report of the revisors, Jan Report, July 1849, being their final report, and relating to code. Richmond, 1849. 3 v. in 1. 8°. [1]

— *Revisors of the Laws,* 1792. Draughts of bills prepared by th appointed under the act "concerning a new edition of the commonwealth," *etc.*, passed 23d Dec., 1790. Transmitted t tive, 26th March, 1792. Richmond, 1792. 2 v. in 1. f°. [1]

With MS. notes.

Virginia, *continued.*

— *Revisors of the Laws*, 1817. Draughts of bills prepared by the revisors of the laws [S. Roane, and others]. Richmond, 1817. 4°. [1]

With MS. notes.

— *Superintendent of Public Instruction.* 1st, 7th, 10th annual report, 1871, 77, 80. Richmond, 1871-80. 3 v. 8°. [2]

— *Supreme Court of Appeals.* *See* **Grattan**, P. R. Reports, v. 33, 1880.

— *Supreme Court of Appeals, High Court of Chancery, etc.* *See* **Martin**, W. B. Index to the Virginia reports.

Virginius, *pseud.* [Letters to the Richmond Enquirer opposing the election of Stephen A. Douglas as candidate for the presidency.] *n.p.*, [1858]. 8°. 16 p. [1]

Voice from rebel prisons; account of the horrors of the stockades at Andersonville, Milan, and other prisons. [*Anon.*] Bost., 1865. 8°. 16 p. [1]

Voltaire, François Marie Arouet de. *See* **Parton**, J.

Voyages. *See* **Hunnewell**, J.

Vroom, Garrett D. W. Reports of cases in the Supreme Court, and, at law, in the Court of Errors and Appeals of New Jersey, [1880]. Vol. 13. Trenton, 1881. 8°. (New Jersey law reports, v. 42.) [2]

Wabash Valley. *See* **Cox**, S C.

Wages. *See* **Berg**, C. P. J. van den.

Wait, William. *See* **Andrews**, R. E.

Wakefield, *Mass.* Inaugural exercises in Wakefield, including the historical address [by L. Eaton], and poem [by J. S. Eaton], on the assumption of its new name, July 4, 1868; also, the exercises at the dedication of Wakefield Hall, Feb. 22, 1871. Bost., 1872. 8°. 100 p. Illus. [1]

Wakefield directory and register of Wakefield, Stoneham, Reading, Saugus, [1874]. Bost., 1874. 8°. [1]

Walford, Cornelius. The insurance cyclopædia. Vol. 1, part 2-8; v. 2; v. 3, part 1-3. N.Y., 1872-74. 3 v. 8°. [1]

Walker, J. The handy book of object lessons: from a teacher's note book. 1st and 2d series complete. Lond., [187-]. 16°. [1]

Walker, Joseph B. Common schools in Concord. Address at the dedication of the new high school house in Concord, April 2, 1864. Concord, 1864. 8°. 22 p. [4]

Wallace, Alfred Russel. Australasia. With ethnological appendix by A. H. Keane. Maps and illus. 2d ed. Lond., 1880. 8°. xviii, (1), 672 p. (**Stanford, E** Compendium of geog. and travel.) [1]

— Island life; or, The phenomena and causes of insular faunas and floras, including a revision and attempted solution of the problem of geological climates. N.Y., 1881. 8°. Maps and illus [1]

Supplementary to his "Geographical distribution of animals."

Wallace, John William. An address at the celebration by the New York Historical Society, May 20, 1863, of the 200th birth day of William Bradford, who introduced printing into the middle colonies. With an introductory note. Albany, 1863. 8°. [3]

— An address of welcome, from the librarians of Philadelphia, to the congress of librarians of the United States, Oct. 4, 1876, in the hall of the Historical Society of Pennsylvania. Phila., 1876. 8°. 11 p. [1]

— A discourse before the Historical Society of Pennsylvania, Oct. 27, 1870, commemorative of the Rev. Benjamin Dorr. Phila., 1870. 8°. 64 p. [3]

Wallis, Severn Teackle. Lecture on the present political condition and prospects of Spain. Balt., 1852. 8°. 28 p. (**Pm.**, v. 118.) [1]

Delivered before the Maryland Institute for the Promotion of the Mechanic Arts, Mar. 12, 1852.

Walpole, *N.H.* *See* **Aldrich**, G.

Waltham directory. Greenough's directory of Waltham an for 1880. Bost., 1880. 8°. [1]

See also **Newton** directory.

Walton's Vermont register, farmers' almanac, and business 1881. Astronomical calculations by H. Doton. Claremon 18°. [1]

Wampanoag Indians. *See* **Miller, W. J.**

Ward, Durbin. American coinage and currency. An essay, re Social Science Congress at Cincinnati, May 22, 1878. Cin 20 p. [1]

Ware, Henry. Christ the head of the church. A sermon del installation of E. H. Sears, Lancaster, Mass., Dec. 23, 184 8°. 36 p. [3, *Henry S. Nourse, Lancaster.*]

Washburn, Emory. Brief sketch of the history of Leicester Ac 1. Bost., 1855. 8°. [2]

Washington, George, *Pres. of the U.S.* *See* **Brooks, E.**;— *City Council*;—**Marshall, J.**

Washington, *D.C.* *Board of Trustees of Public Schools.* 17th a [Wash , 1861.] 8°. [2]

— *Superintendent of Colored Schools of Washington and Georget* report, 1870-71, 72-73. Wash., 1871-74. 8°. [2]

See also **District of Columbia.**

Washington County (*Vt.*) **bar.** Proceedings in relation to Hon. Lucius B. Peck and Luther Henry, at March term, 1867. 1867. 8°. 20 p. [3]

Washington Mansion, *Phila.* *See* **Burt, N.**

Washington Territory. *Legislative Assembly.* Journal of t Representatives, 6th biennial session, 1877. Olympia, 1877. 8

— - Journal of the Legislative Council, 7th biennial session, 18 1879. 8°. [2]

Waterhouse, Sylvester. The resources of Missouri. St. Louis, [1]

Waterloo, Battle of. *See* **Ropes, J. C.**

Waterloo Library and Historical Society. The [Seneca Co nial celebration of General Sullivan's campaign against th 1779, held at Waterloo, Sept. 3, 1879. By D. Willers, Jr. sketch of the Society by S. H. Gridley. [Waterloo, N.Y., 18 traits and illus. [3]

Waters, Asa H. Biographical sketch of Thomas Blanchard a tions. Worcester, 1878. 8°. 15 p. [3, *H. L. Shumway, Worce*

Waters. *See* **Coulson, H. J. W.,** *and* **Forbes, U. A.**

Watertown, *Mass.* Annual report of the receipts and expend year ending Feb. 11, 1856-Feb. 10, 1857. Waltham, 1856-57. 8

— *Free Public Library.* 13th annual report of the board of t Bost., 1881. 8°. [2]

— - Catalogue. 1881. Watertown, 1881. l. 8°. [2]

Watertown directory. *See* **Newton** directory;—**Waltham dir**

Waterville College. *See* **Colby University.**

Waterworks. *See* **Arlington;—Boston;—Browne, J. H. chester,** *N.H.*;—**Middleborough;—Montreal;—New Pittsfield;—Providence;—Springfield.**

Watson, John Lee. Memoirs of the Marstons of Salem, with alogy of some of their descendants. Bost., 1873. l. 8°. 48 p.

Reprinted from the New-England historical and genealogical register, v.

— Paul Revere's signal: the true story of the signal lanterns in Cl Boston. With remarks on laying Dr. Watson's communicati Massachusetts Historical Society, Nov. 9, 1876; by C. Deane 8°. 32 p. (2 cop.) Illus. [3, *Author.*]

Watts, Cornelius C. Reports of cases, 1879-80. *See* **West Virginia.** *Supreme Court of Appeals.*

Watts, Isaac, *and others.* What we eat for butter. [The oleomargarine fraud.] *h.t.p.* [Bost., 1881.] 12°. (12) p. [4]

Webb, Edmund F. The railroad laws of Maine. [1831-75.] With references to decisions of Supreme Judicial Court, also a digest of decisions on the subject of railroads. Portland, 1875. 8°. 720 p. [1]

Webster, Daniel. On the currency. Speech at the merchants' meeting, in Wall Street, N.Y., Sept. 28, 1840. Reported by A. J. Stansbury. N.Y., 1840. 8°. 23, (1) p. [1]

— Second speech on the sub-treasury bill, March 12, 1838. Wash., 1838. 8°. 60 p. [1]

— Speech on the subject of slavery, in the United States Senate, March 7, 1850. Bost., 1850. 8°. 39 p. [4]

Weeks, Joseph D. Industrial arbitration and conciliation. *n.p.*, [1879]. 8°. 7 p. [3, *Carroll D. Wright, Reading.*]

Read before the American Social Science Association, at Saratoga, Sept. 12, 1879.

— Report on the practical operation of arbitration and conciliation in the settlement of differences between employers and employees in England. Harrisburg, 1879. 8°. 47 p. [3, *Carroll D. Wright, Reading.*]

Weisse, John A. The obelisk and freemasonry according to the discoveries of Belzoni and Commander Gorringe. Also Egyptian symbols compared with those discovered in American mounds. With illus. N.Y., 1880. 8°. [1]

Welch, William W. The annual address to the candidates for the degree of doctor in medicine, in the medical institution of Yale College, Jan. 15, 1857. New Haven, 1857. 8°. 14 p. [4]

Wellesley, *Mass.* *See* **Collins,** P. A.

Wenham, *Mass.* Annual report of the auditors of accounts, Selectmen's report of receipts and expenditures, *etc.*, for the year ending March, 1844, 57-59, 62. [Salem, 1844]-62. Broadside and 8°. [2]

Wenham directory. *See* **Danvers.**

Wentworth, E. Gilbert Haven: a monograph. Delivered before the Troy conference, April, 1880. N.Y., 1880. 16°. 42 p. Portrait. [1]

Wentworth, Tappan. *See* **Crosby,** N.

Wesleyan University. Catalogue, 1879/80-80/81. Middletown, 1879-80. 8°. [3]

West. *See* **Burnett,** P. H.

West Boylston, *Mass.* Valuation of the town, 1855, 57, 59. Worcester, 1855-59. 8°. [2]

West Bridgewater, *Mass.* Reports of the selectmen, overseers of the poor, town clerk, for the year ending March 1, 1857. Bost., 1857. 8°. [2]

West Bridgewater directory. *See* **Brockton** directory.

West Brookfield, *Mass.* Valuation and taxes for the year 1880. West Brookfield, 1880. 8°. [3]

West Indies. *See* **Eden,** C. H.

West Jersey Railroad. Suburban homes on the West Jersey Railroad. Phila., 1881. 8°. 20 p. [3]

West Point. *Board of Officers (appointed to Examine into the case of Fitz-John Porter).* Report, June, 1878. *n.t.p.* [N.Y., 1879.] 8°. 27 p. Portraits. [3, *Gen. Fitz-John Porter, Morristown, N.J.*]

— *See* **Boynton,** E. C.

West Springfield, *Mass.* *See* **Sprague,** W. B.

West Springfield directory. *See* **Springfield** directory.

West Virginia. *General Superintendent of Public Schools.* 8th annual report, 1871. Charleston, 1872. 8°. [2]

The 4th report of the Superintendent of Free Schools, 1867, is contained in the Legislative documents of Virginia, 1868.

West Virginia, *continued.*

— *Legislature.* Acts, 15th session, 1881. Wheeling, 1881. 8°. [2

— *State Superintendent of Free Schools.* Biennial report, 1879-8
1881. 8°. [2]

— *Supreme Court of Appeals.* Reports of cases. By C. C. W
1879-80. Wheeling, 1881. 8°. [2]

Westborough, *Mass.* Report of the selectmen and other office
for the year ending March 1, 1859. Bost., 1859. 8°. [2]

— Valuation and taxes, 1858. Worcester, [1858]. 8°. 31 p. [2]

Western Reserve College, *Hudson, Ohio.* 55th annual catalo
and students, 1880/81. Cleveland, 1881. 8°. [3]

Westford, *Mass.* *See* **Hodgman, E. R.**

Westhampton, *Mass.* Memorial of the reunion of the natives
ton, Sept. 5, 1866. [Including addresses by C. P. Judd a
Waltham, 1866. 8°. 85 p. [1]

Westminster, *Mass.* Report of the auditing committee, 1859/6
1860. 8°. [2]

Westminster review. Vol. 113-114. N.Y., 1880. 2 v. 8°. [1]

Westport, *Mass.* *See* **Ricketson, D.**

Weymouth directory. *See* **Quincy.**

Weymouth Historical Society. [Publications], no. 1. Weym
Illus. [3]

No. 1. **Nash**, G. The original journal of Gen. Solomon Lovell, kept
scot expedition, 1779; with a sketch of his life [and the Lovell genealog
ceedings of the Society, 1879-80.

Wharton, Francis. A commentary on the law of evidence
2d ed. Phila., 1879. 2 v. 8°. [1]

— A treatise on the conflict of laws, or private internationa
Phila., 1881. 8°. xvii, 847 p. [1]

Wharton, Thomas I. Reports of cases in the Supreme Court
nia, in the eastern district. Vol. 5-6. 1839-41. Phila., 18
[1]

Whately, Richard. Introductory lectures on political econom
8°. [1]

— Remarks on transportation, and on a recent defence of th
second letter to Earl Grey. Lond., 1834. 8°. [1]

Wheeler, William. An open letter to the alumni of the Mass
cultural College. [Concord, 1881.] 8°. (3) p. [3]

Wheeler family. *See* **Farr, D. C.**

Wheildon, William Willder. The American lobster: natur
habits. Concord, Mass., 1875. 8°. (9) p. [3, *Author.*]

From the Proceedings of the American Association for the Advancemen

— Atmospheric theory of the open polar sea, with remarks on t
of the question. 1st paper. Bost., 1872. 16°. 20 p. [3, *Au*

— *Same.* 3d paper. The Arctic regions. Atmospheric theo
polar sea and an ameliorated climate. Concord, Mass., 1
[3, *Author.*]

From the Proceedings of the American Association for the Advanceme
The second paper is contained in the Proceedings, 21st meeting, 1872.

— Curiosities of history: Boston, Sept. 17, 1630-1880. Bost., 1
[1]

— Semi-centennial celebration of the opening of Faneuil Hal
26, 1876. With a history of the market. Boston, 1877. sm.
[3, *Author.*]

Whipple family. *See* **McDonald, F. V.**

Whitaker's almanack. *See* **Almanack.**

White, Andrew D. Education in political science. Address, Baltimore, 3d anniversary of the Johns Hopkins University, Feb. 22, 1879, Balt., 1879. 8°. 51 p. [3]

White, Pliny H. *See* **Clark, H.**

Whitman, L Public statute laws of Connecticut, [1824]. *See* **Connecticut.** *General Assembly.*

Whitney, Addison Otis. *See* **Andrew, J. A.**

Whitney, William C. Special and local laws affecting public interests in the city of New York, 1880. *See* **New York,** *State. Legislature.*

Whittier, John Greenleaf. Complete poetical works. Household ed. Bost., 1880. 16°. [1]

Wiebe, Edward. Kinder-garten culture: a succinct exposé of F. Frœbel's educational principles. Springfield, [*cop.* 1871]. 16°. 12 p. [3]

Wilber, C. D. The great valleys and prairies of Nebraska and the Northwest. 3d ed. Omaha, 1881. sm. 8°. Illus. [3, *M. T. Dennis, Boston.*]

Wilde, Samuel Sumner. *See* **Crosby, N.**

Wilder, Marshall P. Addresses. *See* **New England Historic, Genealogical Society.**

Wilhelm, Thomas. A military dictionary and gazetteer. Revised ed. Phila., 1881. l. 8°. 659 p. Illus. [1]

Wilkinson, James John Garth. Our social health. A discourse before the London "Ladies' Sanitary Association," Feb. 28, 1865. Bost., 1865. 8°. 38 p. [3]

Willard, Frances E. Annual address before the Woman's National Christian Temperance Union, Boston, Oct. 27, 1880. *n p.*, [1880]. 8°. 16, (2) p. [3]

William III., *King of England.* *See* **De Peyster, F.**

Williams, *Mrs.* Catharine R. (Arnold). *See* **Rider,** S. S.

Williams, Charles L. Statistics of the Rutland County [Vt.] bar, with biographical notices of members, also, a list of county officers, 1781-1847. Brandon, [Vt.], 1847. 8°. 31, (1) p. [3]

Williams, George Frederick. United States digest, 1879. *See* **United States** digest, new series, v. 10.

Williams, John. The life of Alexander Hamilton. N.Y., 1865. 8°. 60 p. (**Hamilton Club** ser., no. 1.) [1]

Williams, Roger. *See* **Elton,** R.

Williams, William Blackstone. *See* **Thompson,** J. W.

Williams College, *Williamstown, Mass.* Catalogue of the officers and students, 1880/81. North Adams, 1880. 8°. [3]

— General catalogue of the officers, trustees, alumni, *etc.* [Williamstown], 1880. 8°. [3]

— Publications of the presidents and professors, 1793-1876. North Adams, 1876. 8°. 19 p. [3]

Willis, Henry A. Fitchburg in the war of the rebellion. Fitchburg, 1866. 8°. [1]

Wilmington, *Mass.* Receipts and expenditures of the town, March, 1860–Feb. 1863. Woburn, 1861-63. 8°. [2]

Wilson, John A. Adventures of Alf. Wilson. A thrilling episode of the dark days of the rebellion. Toledo, 1880. sm. 8°. Portrait and illus. [1]

Wilson's business directory of New York City. Vol. 33. [1880-81.] N.Y., 1880. 24°. Map. [1]

Winch, *Sir* Humphry. Reports [in] the Court of Common Pleas, in the foure last years of the raign of King James, [1621-25]. Lond., 1657. f°. [1]

With MS. notes.

Winchendon, *Mass.* Copy of the valuation and taxes, 1854, 58. Fitchburg, 1855-58. 8°. [2]

Winchendon, *Mass., continued.*

— Reports of the selectmen and overseers of the poor for the year
20, 1857. Fitchburg, [1857]. 8°. [2]

Winds. *See* **Taber,** C. A. M.

Wines, Frederick H. Tables showing the system of courts of cri
diction in the United States. *See* **United States.** *Census Offi*

Winlock, Joseph. Tables of Mercury. *See* **United States.** *Bu*
igation.

Winslow, Charles A. Annotated pocket edition of the revis
1879. *See* **Missouri.** *General Assembly.*

Winsor, Justin, *editor.* The memorial history of Boston, includ
County, Mass., 1630–1880. Vol. 1-2. Issued under the busin
tendence of C. F. Jewett. Bost., 1880–81. 2 v. 4°. Maps, p
illus. [1]

Contents.

Vol. 1. The early and colonial periods.
2. The provincial period.

Winter, William. *See* **Ordronaux,** J.

Winthrop, John. The history of New England, 1630–49. With
Savage. New ed., with additions. Bost., 1853. 2 v. 8°. Port

Winthrop, Robert Charles. Address at the unveiling of the st
William Prescott on Bunker Hill, June 17, 1881. Camb., 188
Illus. [3]

— Memoir of Henry Clay. Camb., 1880. l. 8°. 39 p. [3, *Author.*]

Prepared at the request of the New-England Historic-Genealogical Soci

Winthrop, William. Digest of opinions of the Judge-Advoca
1862–75. *See* **United States.** *Department of War.*

Wisconsin. *Geological Survey.* Geology of Wisconsin. Survey
Vol. 2. Accompanied by an atlas of maps. [Madison], 187
f°. Illus. [2]

— *Legislature.* Assembly journal, 34th annual session, 1881. Ma
8°. [2]

— – Governor's message and accompanying documents, 1881. Ma
2 v. 8°. [2]

— – Laws, annual session, 1881, with joint resolutions. Madison, 1

— – Senate journal, 34th annual session, 1881. Madison, 1881. 8°.

— *State Agricultural Society.* Transactions. Vol. 12, 16-18. 18
Madison, 1874–80. 4 v. 8°. [2]

Vol. 12, prepared by W. W. Field; v. 16-18, by G. E. Bryant.

— *State Library.* Catalogue. 1881. Madison, 1881. 8°. [3]

— *State Superintendent (of Public Instruction).* Annual report for
year ending Aug. 31, 1880. W. C. Whitford, State Superintend
son, 1881. 8°. [2]

— *Supreme Court.* Reports of cases. O. M. Conover, official rep
49–50. 1880–81. Chicago, 1880–81. 2 v. 8°. [2]

— *See* **Tenney,** H. A., *and* **Atwood,** D.

Wisconsin State Historical Society. 26th annual report, [1
[1880]. 8°. [3]

— Catalogue of the library. 1st supplement. [Vol. 3.] Prepare
and I. Durrie. Madison, 1875. 8°. [3]

— Catalogue of the library. Vol. 4. 2d supplement. Prepared b
I. Durrie. Madison, 1878. 8°. 750 p. [3]

— Report and collections, 1877-79. Vol. 8. Madison, 1879. 8°. [3]

Contents.

Vol. 8. Officers of the Society, 1877-79. — Annual reports, 1877-79. — In me
Stephen Haskins Carpenter; — Hon. George B. Smith. — **Houghton,** J. A
mines of Lake Superior. — **Slafter,** E. F. Pre-historic copper implements. –
C., *and others.* Ancient copper implements. — **Brown,** E. Pictured cave
Valley. — **Rice,** J. A. Additional notes on the La Crosse cave. — **Sulté,** B.

Wisconsin State Historical Society, *continued.*

Nicolet. — **Butler,** J. D. Early historic relics of the North-West. — **Tradition** of the Fox Indians. — **Martin,** M. L., *editor.* Langlade papers, 1737-1800 — **Schoolcraft,** H. R. An incident of Chegoimegon, 1760. — **Porlier,** L. B. Capture of Mackinaw, 1763. — **Moran,** E., *and* **Gorrell,** J. Green Bay and the frontiers, 1763-65. — **Strong,** M. M. The Indian wars of Wisconsin. — **Tanner,** E. Wisconsin in 1818. — **Bristol,** *Mrs.* M. A. B. Reminiscences of the North-West. — **Clark,** S. Early times at Fort Winnebago, and Black Hawk war reminiscences. — **Ellis,** A. G. Recollections of Rev. Eleazer Williams. — **Draper,** L. C. Additional notes on Eleazer Williams. — **Kingston,** J. T. Early exploration and settlement of Juneau Co. — **Luchsinger,** J. The Swiss colony of New Glarus. — **Tschudy,** J. J. Additional notes on New Glarus. — **Draper,** L. C. Wisconsin necrology, 1876-78. — Additions and corrections. — General index.

Withrow, John Lindsey. "The hour for Africa." An address before the American Colonization Society, Jan. 18, 1881. Wash., 1881. 8°. 12 p. [3]

Woburn, *Mass.* Statement of receipts, expenditures, &c., for the financial year ending Feb. 19, 1847. *n.p. n.d.* 18°. [3, *George M. Champney, Woburn.*]

— *Public Library.* 24th annual report, 1881. Bost., 1881. 8°. [2]

— - Bulletin of accessions, 1873-74, 75-76, 80, 81. Woburn [1874-81]. 8°. [3]

— - Catalogue. Appendix 1. Woburn, 1862. 8°. 36 p. [3]

— - Catalogue. Woburn, 1865. 8°. 66 p. [3]

— - *Same.* Supplement, containing accessions, 1866-73. Woburn, 1873. 8°. 46 p. [3]

— - Class lists. Bost., [1881]. 1. 8°. [3]

— - Report of the library committee, 1874; 18th-20th, 23d annual report, 1875-77, 80. Woburn, Bost., 1874-80. 8°. [2]

Woman. *See* **Cobbe,** F. P.; — **Kilgore,** *Mrs.* C. B.; — **Mill,** J. S., *pseud.*; — **Stanton,** *Mrs.* E. C., *and others.*

Wood, Benjamin. Sermon at Upton, June 1, 1846, fifty years from the time of his induction into the pastoral office in that place. Worcester, [1846]. 8°. 32 p. [2]

Wood, L. L. Cui bono? [N.Y., 187-.] 8°. 4 p. [3]

Published by the National Executive Committee of the Prohibition Reform Party.

Woodbury, Charles Levi. The relation of the fisheries to the discovery and settlement of North America. Bost., 1880. 8°. 26 p. [3, *Author.*]

Delivered before the New Hampshire Historical Society, Concord, June, 1880, and the Massachusetts Fish and Game Protection Society, Boston, 1880.

Woodman family. *See* **Coffin,** J.

Woods, William B. Cases in the Circuit Courts of the United States for the 5th judicial circuit, [1877-79]. Vol. 3. Chicago, 1880. 8°. [1]

Woollen manufacture. *See* **Hayes,** J. L.; — **National Association of Wool Manufacturers.**

Woolsey, Theodore Dwight. Essay on divorce and divorce legislation, with special reference to the United States. N.Y., 1869. 12°. [1]

Worcester, Joseph Emerson. A dictionary of the English language. New ed., with supplement. Phila., 1881. 4°. lxvii, (1), 1990 p. [1]

Worcester, *Mass.* Apportionment of the city into wards, as determined by the selectmen, March 27, 1848. *n.t.p.* [Worcester, 1848.] 8°. 8 p. [3]

— Assessors' list of taxable polls in Worcester, 1868. [Worcester, 1868.] 8°. [3]

— Assessors' list of the shareholders in the Worcester banks, May 1, 1866, 76, 77. Worcester, 1866-[77]. 8°. [3]

— Report of the overseers of the poor, April 1, 1839. Worcester, 1839. 8°. [3]

— Report of the school committee, supplementary report on paving Main-Street, report of the overseers of the poor, *etc.*, April, [1847]. Worcester, 1847. 8°. 20 p. [3]

— Report of the selectmen, March, 1838; Feb., 1839; Reports of the municipal officers, May, 1840; May, 1841; Reports submitted to the town, March-1842-March, 1845; Reports of the selectmen and overseers of the poor, April, 1846. Worcester, [1838-46]. 8°. [3]

The report for 1845 contains the by-laws of the town.

Worcester, *Mass., continued.*

— Report of the selectmen in relation to a supply of water for the ment of fires. Worcester, [1843]. 8°. 12 p. [3]

— Reports of the selectmen, and the committee on paving March, [1847]. Worcester, 1847. 8°. 15 p. [3]

— *Auditor.* Tables showing the population, valuation, taxes, *etc.*, ter, 1850-76. Worcester, 1876. 8°. 16 p. [3]

— *Board of Aldermen.* Police regulations. *n.t.p.* [Worcester, 186 [3]

— *Board of Health.* Regulations. Worcester, 1873. 8°. 8 p. [3]

— *City Council.* An act concerning the fire department of Wor other ordinances. Worcester, 1869]. 8°. 7 p. [3]

— - Laws and ordinances, 1880. Worcester, [1880]. 8°. [3]

— - Laws of settlement, city ordinances, and by-laws, of the over poor. Worcester, 1873. 8°. 24 p. [3]

— - A memorial of James Barnard Blake, late mayor of Worces the eulogy by A. H. Bullock.] Worcester, 1871. 8°. Portrait. *A. H. Bullock, Worcester.*]

— - An ordinance establishing the boundaries of the several w city. *n.t.p.* [Worcester, 1865.] 8°. 6 p. [3]

— - An ordinance establishing water rates. *n.t.p.* [Worcester, 18 [3]

— - Ordinances of the city, 1848-51. [Worcester, 1851.] 16°. 83

— - Report of a survey for water for the city. By M. B. Inches. 1854. 8°. 54 p. [3]

— - [Report of the joint standing committee on water.] *n.t.p.* 1856.] 8°. 8 p. [3]

— - Report on an additional supply of water for the city. With and estimates, by P. Ball. Worcester, 1863. 8°. 27 p. [3]

— - Report on supplying Worcester with water from Henshaw Po ter, 1856. 8°. 16 p. [3]

— - Resolutions adopted by the city government upon the death Sumner, March 23, 1874. [Prepared by A. H. Bullock.] Wor 8°. 6 p. [3, *A. H. Bullock, Worcester.*]

— - Revised ordinances of the city, 1862. [Worcester, 1862.] 8°.

— - Rules and orders of the board of aldermen and common counc 57, 60, 67, 72.] Worcester, 1848-[72]. 8°. [2]

— - *Same.* Rules and orders. *n.p., n.d.* 2 pm. 8°. [2]

— - Specifications for sewers, ordered by the City Council, 187-. 8°. 12 p. [3]

— - Supplement to the laws and ordinances. 1868-72. [Worceste [3]

— *Free Public Library.* 21st annual report of the directors, 1880. [1881]. 8°. [2]

— *Mayor.* Communication of the Mayor. Finances of the [Worcester, 1867.] 8°. 4 p. [3]

— *See* **Ball, P.**; — **Davis, J.**; — **Massachusetts.** *General Court*; —

— **Soldiers' Monument.** Dedication, July 15, 1874. Worcester, 90 p. [2]

— **Worcester Society of Antiquity.** [Publications], no. 9-14. 1880-81. 8°. [3]

Contents.

No. 9-12. **Rice, F. P.**, *editor.* Records of the proprietors of Worcester.
13. Proceedings of the Society, 1880.
14. **Rice, F. P.**, *editor.* Worcester town records, 1753-65.

Worcester [*Mass*] directory. No. 37-38. 1880-81. Worcester, 1 8°. Maps. [1]

Worcester and Nashua Railroad Company. Annual report o ors, 1881. Worcester, 1880. 8°. [3]

Worcester, *Vt.* *See* **Abbott, S. C.**

Worcester County, *Mass.* Receipts and expenditures of the county, 1865/66, 69/70, 73/74, 78, 79. *n.t.p.* [Worcester, 1866-80.] 8°. [3]

Worcester County directory, 1880-81. Bost., 1880. 8°. [1]

Worcester County Free Institute of Industrial Science. 11th annual catalogue, with the plan of instruction, 1881. Worcester, 1881. 8°. [3]

Worcester County Horticultural Society. Transactions of the Society from its formation, [1840]-80. Bost., Worcester, 1847-80. 8°. [3]

Schedules of premiums offered, 1872-77, are prefixed to the Transactions, 1871-76.

Worcester South Conference of Congregational Churches. Worcester South chronicles. Brief history of the Congregational Churches of the Conference, 1670-1876. Worcester, 1877. 8°. 66 p. [3, *H. L. Shumway, Worcester.*]

Wordsworth, William. *See* **Myers, F. W. H.**

Wright, Hendrick B. Historical sketches of Plymouth, Penn. Phila., [*cop.*, 1873]. 16°. Portraits and illus. [3, *Author.*]

Wright, John S. Chicago: past, present, future. Chicago, 1868. 8°. Maps and illus. [3, *Samuel A. Green, M.D., Boston.*]

Wyckoff, William C. The silk goods of America: recent improvements and advances of silk manufacture in the United States. [With the 8th annual report of the Silk Association of America and the American silk goods directory, 1880.] 2d ed. N.Y., 1880. 8°. [3]

Yale College, *New Haven, Conn.* Catalogue of officers and students, 1879/80-80/81. New Haven, 1879-80. 8°. [3]

— Catalogus senatus academici, et eorum qui munera et officia academica gesserunt. [1880.] Novo-Portu, 1880. 8°. [3]

— Obituary record of graduates deceased during the academical year ending in June, 1881. No. 1, 3d printed series. *h.t.p.* [New Haven, 1881.] 8°. 60 p. [3]

— Statements respecting the late progress and present condition of the various departments of the University. [New Haven, 1880.] 8°. 34 p. [3]

— Yale College in 1881. Some statements respecting the late progress and present condition of the University. [New Haven, 1881.] 8°. 40 p. [3]

— *Class of* 1832. Biographical memoranda respecting all who ever were members of the class. Ed. by the class-secretary [E. E. Salisbury]. New Haven, 1880. 4°. [3, *Edward Elbridge Salisbury, New Haven, Conn.*]

Yancey, William Lowndes. *See* **Hodgson, J.**

Yarmouth, *Mass.* **First Congregational Church.** *See* **Dodge, J. W.**

Yarrow, Harry C. Introduction to the study of mortuary customs among the North American Indians. *See* **Smithsonian Institution.** *Bureau of Ethnology.*

Yellow fever. *See* **Keating, J. M.**

Yellowstone National Park. *See* **United States.** *Superintendent of the Yellowstone National Park.*

Yelverton, *Sir* Henry. Reports of divers special cases in the Court of King's Bench, [1602-12]. 1st Amer. from the 4th English ed., with notes and references by T. Metcalf. Andover, [Mass.], 1820. 8°. [1]

With MS. notes.

York County, *Me.* *See* **Sanford, Everts & Co.**

Yorktown, *Va.* The centennial anniversary of the surrender of Lord Cornwallis, 19th Oct., 1781, to be celebrated on the field of Yorktown, Oct., 1881. N.Y., 1880. 8°. 17 p. [3]

— *See* **Duhamel, W. J. C.**; — **Johnston, H. P.**; — **Newport** mercury; — Orderly book.

Young, Edward James. Professor J. Lewis Diman. A mem
Camb., 1881. 8°. 16 p. [3, *Author.*]

Reprinted from the proceedings of the Massachusetts Historical Society,

Young, Robert. Analytical concordance to the Bible. Revise
1881. 4°. iv, 1090 p. [1]

Zeitschrift für die landwirthschaftlichen Vereine des Gros
Hessen. 50 er Jahrgang, 1880. Darmstadt, [1880]. 4°. [2]

Zell's United States business directory, 1875. Compiled [by
Phila., [*cop.*, 1874]. 8°. [1]

Zulu war. *See* **Colenso, F. E.,** *and* **Durnford, E.**

MAPS.

Athol, ***Mass.*** View of Athol. Published by O. H. Bailey & Co. Bost., 1878. [1]

Attleborough, ***Mass.*** View of Attleborough. East village. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1878. [1]

Beverly, ***Mass.*** View of Beverly. O. H. Bailey & Co., publishers. Bost., 1879. [1]

Blackstone, ***Mass.*** Bird's eye view of Blackstone. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1879. [1]

Boston, ***Mass.*** Old Boston compiled from the Book of Possessions by G. Lamb, [about 1645]. Published by the trustees of the Boston Public Library. Bost., [1881]. [3]

— Plan of Boston in 1722. [3]

— Plan of the town and harbor of Boston, 1774. From an accurate survey by British authority. Bost., *A. O. Crane*, 1875. [3, *Publisher*.]

— Map showing horse rail roads and the surface steam roads with 104 stations in and around Boston including 91 surface steam R. R. stations within a radius of six miles from city hall. Compiled by F. Pope. Bost., 1881. [3, *Compiler*.]

Boston Harbor. Gen. Washington's revolutionary campaign war map, after a survey ordered by him, showing the position of his army in defence of Boston, 1776. Bost., *A. O. Crane*, 1875. [3, *Publisher*.]

Brockton, ***Mass.*** [View of] Brockton. Beck & Pauli, lith. 1878. [1]

Cambridge, ***Mass.*** View of East Cambridge. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1879. [1]

Campello, ***Mass.*** Bird's eye view of the village of Campello, in Brockton. Beck & Pauli, lith. Milwaukee, Wis. 1880. [1]

Canton, ***Mass.*** Map of the town of Canton. Surveyed by H. F. Walling, 1855. [With map of South Canton.] [3, *Hon. Charles Endicott, Canton.*]

— View of Canton. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1878. [1]

Clinton, ***Mass.*** Bird's eye view of Clinton. Drawn and published by O. H. Bailey & Co. C. H. Vogt, lith. Milwaukee. [187–.] [1]

Easthampton, ***Mass.*** [View of] Easthampton. Galt & Hoy, publishers. N.Y., 1878. [1]

Fall River, ***Mass.*** [View of] Fall River. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1877. [1]

Fitchburg, ***Mass.*** Bird's eye view of Fitchburg. Drawn and published by H. H. Bailey & Co. 1875. [1]

Gardner, ***Mass.*** [View of] Gardner. Published by E. H. Bigelow. Framingham, 1880. [1]

Greenfield, ***Mass.*** View of Greenfield. Drawn and published by O. H. Bailey & Co. Boston, 1877. [1]

Hancock County, ***Me.*** Topographical map of Hancock County, Me. From actual surveys under the direction of H. F. Walling. Published by Lee and Marsh. New York, 1860. [1]

Hartford and Connecticut Valley R. R. Map of propos
from the south line of Mass. to Holyoke [1881. With a m
port on surveys and estimates for the proposed extension,
engineer]. [4]

— Profile of proposed extension from the south line of Mass.
[1881.] T. Drake, engineer. [4]

Haverhill, ***Mass.*** [View of] Haverhill. Drawn and publishe
Bailey and J. C. Hazen. [Bost.], 1876. [1]

Hawaiian Islands. Map of the Hawaiian Islands. Compile
Alexander. Drawn by H. Giles, Honolulu, for the America
Exhibition, 1876. [With plans of the three great Hawaiian c

Holliston, ***Mass.*** View of Holliston. D. Bremner Co., lith.
1878. [1]

Holyoke, ***Mass.*** Bird's eye view of Holyoke. Drawn and pul
H. Bailey and J. C. Hazen. N.Y., 1877. [1]

Hopkinton, ***Mass.*** [View of] Hopkinton. O. H. Bailey and
publishers. Bost., 1880. [1]

Hudson, ***Mass.*** Bird's eye view of Hudson. Drawn and publis
Bailey and J. C. Hazen. Bost., 1878. [1]

Hyde Park, ***Mass.*** View of Hyde Park. Drawn and publish
Bailey and J. C. Hazen. Bost., 1879. [1]

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Lee, ***Mass.*** [View of] Lee. Drawn and published by H. H.
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Leominster, ***Mass.*** View of Leominster. Drawn and publish
Bailey & Co. 1876. [1]

Lowell, ***Mass.*** Bird's eye view of Lowell. Drawn and publish
Bailey and J. C. Hazen. 1876. [1]

Maine. Map of the state. From actual surveys by H. F. W
Chace, Jr. Portland, 1861. [1]

— Plan [representing] several tracts of land and inhabitants ther
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Mansfield, ***Mass.*** View of Mansfield. Drawn and published b
and J. C. Hazen. Bost., 1879. [1]

Marlborough, ***Mass.*** View of Marlborough. Drawn and pul
H Bailey and J. C. Hazen. Bost., 1878. [1]

Medford, ***Mass.*** Map of Medford. Surveyed under the direc
Walling. Bost., 1855. [3]

— [View of] Medford. O. H. Bailey & Co., publishers. Bost., 1

Middleborough, ***Mass.*** [View of] Middleboro. Published b
low. Framingham, 1881. [1]

Middlesex R. R. Map of the rail road and proposed extensi
by W. S. Barbour and A. Hodges. Bost., *n.d.* [3]

Milford, ***Mass.*** View of Milford. 1876. [1]

Monson, ***Mass.*** [View of] Monson. O. H. Bailey & Co., publ
1879. [1]

Mystic Valley sewer. Map showing location of sewer. H.
city engineer. Bost., 1881. [3]

Natick, ***Mass.*** View of Natick. O. H. Bailey & Co., publishers
[1]

New Bedford, ***Mass.*** View of New Bedford. Drawn and publi
Bailey & Co. Bost., 1876. [1]

New York, *City.* A plan of the city of New York from an
made by J. Lyne. Facsimile of an original map of New
published by F. B. Patterson, 1874. [1]

Newburyport, *Mass.* [View of] Newburyport. Published by Bigelow and Hazen. 1880. [1]

Newton, *Mass.* View of Newton. O. H. Bailey & Co., publishers. Bost., 1878. [1]

North Easton, *Mass.* View of North Easton. O. H. Bailey & Co., publishers. Bost., 1881. [1]

Northampton, *Mass.* [View of] Northampton. 1875. Drawn and published by H. H. Bailey & Co. [1]

Paris. New map of Paris. A souvenir of the Universal Exhibition, 1867. Dressé par V. Clerot. Paris, 1867. [3]

Peabody, *Mass.* View of Peabody. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1877. [1]

Pittsfield, *Mass.* Bird's eye view of Pittsfield. Drawn and published by H. H. Bailey and J. C. Hazen, 1876. [1]

South Framingham, *Mass.* Plan of the state camp ground, June, 1881. Surveyed by order of A. H. Berry, J. H. Curtis, C. E., Boston. [4]

Southbridge, *Mass.* View of Southbridge. J. L. Galt & Co., publishers. N.Y., 1878. [1]

Springfield, *Mass.* View of Springfield. Drawn and published by O. H. Bailey & Co. 1875. [1]

Stoughton, *Mass.* [View of] Stoughton. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1879. [1]

Taunton, *Mass.* [View of the] city of Taunton. 1875. [1]

Turner's Falls, *Mass.* [View of] Turner's Falls. Drawn and published by O. H. Bailey & Co. Bost., 1877. [1]

Uxbridge, *Mass.* [View of] Uxbridge. Published by E. H. Bigelow. Framingham, 1880. [1]

Waltham, *Mass.* View of Waltham. Drawn and published by O. H. Bailey & Co. [187-.] [1]

Warren, *Mass.* View of Warren. Drawn and published by O. H. Bailey & Co. Bost., 1879. [1]

Watertown, *Mass.* View of Watertown. O. H. Bailey & Co., publishers. Bost., 1879. [1]

Webster, *Mass.* View of Webster. Beck & Pauli, lith. 1878. [1]

Westborough, *Mass.* [View of] Westboro. Published by E. H. Bigelow. Framingham, 1880. [1]

Westfield, *Mass.* [View of] Westfield. Drawn and published by O. H. Bailey & Co. 1875. [1]

Weymouth, *Mass.* [View of] Weymouth. Published by E. H. Bigelow. Framingham, 1880. [1]

Winchendon, *Mass.* View of Winchendon. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1878. [1]

Worcester, *Mass.* [View of] the city of Worcester. Drawn and published by O. H. Bailey and J. C. Hazen. Bost., 1878. [1]

TWENTY-NINTH ANNUAL REPORT

OF THE

SECRETARY

OF THE

Massachusetts Board of Agriculture:

WITH

RETURNS OF THE FINANCES OF THE
AGRICULTURAL SOCIETIES,

FOR

1881.

BOSTON:
Rand, Avery, & Co., Printers to the Commonwealth,
117 Franklin Street.
1882.

STATE BOARD OF AGRICULTURE, 1882.

Members Ex Officiis.

HIS EXCELLENCY JOHN D. LONG.
HIS HONOR BYRON WESTON.
HON. HENRY B. PEIRCE, *Secretary of the Commonwealth.*
CHARLES A. GOESSMANN, *State Agricultural Chemist.*
LEVI STOCKBRIDGE, *President Mass. Agricultural College.*

Appointed by the Governor and Council.

	Term Expires.
JAMES S. GRINNELL of Greenfield	1884
JAMES R. NICHOLS of Haverhill	1885
MARSHALL P. WILDER of Boston	1883

Chosen by the County Societies.

Massachusetts	**E. F. BOWDITCH of Framingham**	**1885**
Essex	**BENJAMIN P. WARE of Marblehead**	**1884**
Middlesex	**JOHN B. MOORE of Concord**	**1885**
Middlesex North	**A. C. VARNUM of Lowell**	**1883**
Middlesex South	**S. B. BIRD of Framingham**	**1884**
Worcester	**O. B. HADWEN of Worcester**	**1884**
Worcester West	**E. C. FARNSWORTH of Templeton**	**1884**
Worcester North	**GEORGE JEWETT of Fitchburg**	**1884**
Worcester North-West	**J. P. LYNDE of Athol**	**1883**
Worcester South	**SAMUEL N. GLEASON of Warren**	**1883**
Worcester South-East	**VELOROUS TAFT of West Upton**	**1885**
Hampshire, Franklin, & Hampden,	**HENRY C. HASKELL of Deerfield**	**1885**
Hampshire	**FLAVEL GAYLORD of Amherst**	**1883**
Highland	**E. H. GOODRICH, JUN., of Hinsdale**	**1884**
Hampden	**CHAUNCEY L. BUELL of Ludlow**	**1885**
Hampden East	**WILLIAM R. SESSIONS of Hampden**	**1885**
Union	**HENRY K. HERRICK of Blandford**	**1883**
Franklin	**JOHN S. ANDERSON of Shelburne**	**1883**
Deerfield Valley	**ARTHUR A. SMITH of Colrain**	**1884**
Berkshire	**HENRY NOBLE of Pittsfield**	**1885**
Hoosac Valley	**JAMES M. WATERMAN of Williamstown**	**1885**
Housatonic	**MERRITT I. WHEELER of Great Barrington,**	**1885**
Bristol	**AVERY P. SLADE of Somerset**	**1884**
Plymouth	**JOHN LANE of East Bridgewater**	**1848**
Hingham	**EDMUND HERSEY of Hingham**	**1885**
Marshfield	**DANIEL E. DAMON of Plymouth**	**1885**
Barnstable	**JOSEPH STORY FAY of Wood's Holl**	**1883**
Nantucket	**DANIEL ROUND of Nantucket**	**1885**
Martha's Vineyard	**DAVID MAYHEW of North Tisbury**	**1883**
Amesbury and Salisbury	**J. H. HILL of Amesbury**	**1884**

JOHN E. RUSSELL, *Secretary.*

THE
TWENTY-NINTH ANNUAL REPORT
OF THE
SECRETARY
OF THE
BOARD OF AGRICULTURE.

To the Senate and House of Representatives of the Commonwealth of Massachusetts.

THE Twenty-ninth Annual Report of the Board of Agriculture is respectfully submitted.

The agricultural pursuits of the Commonwealth have not only shared in the general prosperity, but have had increased profit from extraordinary circumstances.

The season of 1881 was unfavorable over the greater portion of the United States. For the first time since annual reports of the farming interest have been made, we have seen a market that has allowed the importation of food from the continent of Europe. Potatoes, cabbages, beans, onions, etc., have been received in large quantities; and small lots of first-class butter have found a remunerative market.

The scarcity that has caused a change in the current of commerce, and made a part of the New World dependent upon the Old for common articles of food, has not been detrimental to the farming interests of Massachusetts.

Though our soil is only productive under skilful cultivation, our seasons are not variable; and the average of crops was well maintained over our whole area, which has resulted greatly to the profit of our farmers.

Prosperity has had the effect of increasing the i agricultural pursuits, and has made a very active the members of the Board. The plan of "institu vided by the Board in 1878, has been greatly en scope; and the members have been called upon fo deal of work in connection with this method of diss agricultural knowledge and experience. The dut secretary have been much increased in connection important branch of the business of the Board, ever in the Commonwealth looking to him for occasio ance.

The lack of late statistics of production makes i ble to report the condition of our agriculture i Public Document No. 19, of the Department of Sta Abstract of Polls, Property, and Taxes, records an of 13,095 acres of improved land in 1881,—about increase as was noted in 1880.

The great advantages offered by sheep-husband continuous enlargement of our flocks, notwithstan risk and annoyance to which we are subjected by th of dogs. In 1880 the increase in the number of s 5,792; but the failure of the Legislature to amend law in the interest of sheep-husbandry has had a d effect, and the past year shows an increase of but 1 of sheep.

It is an anomaly in our civilization, that, in a th ety demanding the exercise of every reasonable ec its varied industries, the oldest and most profitab suits should be thus vexed and prevented. "It is to take the children's bread, and cast it to dogs."

We need sheep to add to the profit of farming, to the staple of our important woollen-industry, to s food-supply, and to improve the fertility of the s number of sheep in the Commonwealth could be au twenty-fold without displacing a single head of cat importance of the matter is awakening the earnest of the farmers.

Legislation on this subject is difficult. Owners are numerous and vigilant. They paid in "licen year about a hundred thousand dollars,—a conven for educational purposes, or the use of town-librarie are the favorite companions of man, and the welcome inmates of the household. Dogs are held by the courts to be property: a farmer must recognize that fact, though the licensed animal may stand before him stained with the blood of the ruined flock. If a dog is valuable property, and useful and profitable to the community, why should he be licensed? We do not take out a license to keep a bull or a boar, often savage and dangerous animals: regarding them as property, we pay taxes upon their value, and become responsible for their actions. Dogs should not be accorded an immunity that is not asked for any other domestic animal.

Nor does it follow that judicious legislation in this matter would reduce the number of useful dogs. On the contrary, it would have a tendency to cause the substitution of honest, valuable animals for the worthless brutes that now infest our villages.

The dairy interest, measured by the assessors' returns, has made no increase during the past year. This falling-off may be explained in various ways. One reason is, that milk-producers, dealing with middlemen, who monopolize the business of Boston, do not realize remunerative prices for milk; but the chief cause may be found in the fear that oleomargarine and other artificial butters would seriously interfere with the domestic manufacture.

The past season has proved that the reduction of the herds has been a sad miscalculation; for, though low-quality butter is still the largest part of our production, and is sold at prices regulated by the oleomargarine factories, good butter is scarce at unprecedented prices.

The manufacture of spurious butter from animal fats, instead of exercising a disastrous effect upon the market, has been a real advantage: it has only competed with poor butter; and many families, suspicious of all low-priced butter, and unable to distinguish the difference in grease, have become purchasers of the better qualities. This is a notable cause of the steady advance in prices.

If farmers were more alive to the great advantage of dealing directly with consumers, they would find that many families can readily be induced to make contracts for butter by the year, knowing it to come direct from the farm. Such customers are of a class that consume generously, and pay full prices.

The time is rapidly coming, in the progress of our when we will look upon the present methods of dairying as wasteful, and an onerous tax upon the worked portion of the farmer's family.

Butter *has* always been a sure means of getting c this is earned by the hard labor of the women, and the sacrifice of health. Much as this labor has b gated by the introduction of improved implements a great step yet to be taken in the adoption of the ery " system of co-operative butter-making.

This is not an experiment to be tried: it has be eration for some years, proving highly successful have a proof of the superiority of creamery butter market-stall in Boston. When the New-England reluctantly conceded their own grain and cattle m the Western producer, they thought themselves s the monopoly of dairy products. They were safe Western farmers followed the old system of domes ing, with its careless and varying methods. Upon t lishment of co-operative dairies, taking the cre hundreds of cows, and producing, under expert man an unvarying quality of product, the prizes ha awarded to them, and their butter, without depres market, took precedence of ours; for good butte difficulty in getting recognition, and generous pric await it. "There is always room at the top." Th ority of the Western creamery product became e manifest, when in 1876, at the Centennial Exposi gold medals for both spring and fall butter went East,—passing the famous dairies of New York, w century of renown, past the rich farms of Che Lancaster Counties in Pennsylvania, where the sto houses cool the pans that have made Philadelphia b synonyme of dairy excellence,—and were awarded eries in Iowa and Illinois.

The Eastern people were not convinced of the by this single success; but the next year at Chic full competition, the creameries of Wisconsin and were decorated with the medals. At the internation in New York in 1878 and 1879, Iowa, Wisconsin, nois left only a fifth premium to the Eastern privat

Nor were these temporary successes with special lots of show-butter: they have competed with us in the Boston market; and, leaving out of the question some of the dairies of high repute that have a demand at a fancy price from established customers, the creamery product of Wisconsin, Iowa, and Illinois has brought ten per cent more money in the open market than the choicest New-England product.

This is owing to its high average quality and uniformity, not for one shipment or carload, not for a hundred tubs, but for continuous, sustained excellence of the product from season to season.

Every district where the milk of from two hundred to four hundred cows can be controlled is a proper situation for a creamery. The saving of labor to the women of the household, who are always overburdened, the economy in tools and appliances, in transportation and marketing, are all points in favor of co-operative butter-making

ENSILAGE.

In the report of 1880 I stated that it then appeared that the ensilage system would be valuable only as an auxiliary in feeding our stock.

The claims of the advocates of silos were then very extravagant. It was contended that certain "improved" seed, widely advertised, would produce from forty to seventy tons of corn-fodder to the acre; and the most moderate calculators estimated twenty-five tons as an average crop. It was also asserted that the fermentation of the mass in the silo caused an increase of nutrition in a watery, innutritious crop; that cattle eagerly ate it; and that, with but a moderate addition of nitrogenous food, the flow of milk was greatly augmented, or growth and fat increased. There appeared to be a great saving in the cost of maintenance, and many farmers were led to expensive trials of the system. It has been the endeavor of the Board, by publishing the chemical-analyses of ensilage, to give correct statements in regard to its value as a food; and the experiments of those who have planted corn-fodder have reduced the estimate of average yield on our soil to something like twelve tons to the acre.

More cotton-seed or corn meal and bran is required to complete a ration than was expected; and, with the present

state of the evidence, it appears very doubtful if en
to be even an assistance in our system of feeding.

Twelve tons of average ensilage contain but litt
than two tons of dry matter, and cost, to raise and
more than thirty dollars. As the same land would p
with less cost and less trouble, a larger quantity of d
ter in any of our forage crops, and about the same am
fodder in addition to a crop of ripened corn, it is impos
figure out a profit.

The advocates of ensilage claim that the average c
be much larger than I have stated it. Perhaps it ma
when it is proved to be, the Report of the Board of
ture will so state it.

If the average crop of corn-fodder can be incre
twenty tons, which is the heaviest yield reported, and
seed meal remains at its present price, and the health
is not affected by the diet, milkmen will have an int
the system.

At the meeting of the American Dairymen's Asso
lately held at Syracuse, N.Y., it was the opinion of th
of practical farmers and butter-makers, that ensilag
cotton-seed meal, was not the diet for their cow
necessity is a higher quality of butter rather than a
product. The farmers of the North-west, who are o
petitors in the butter-market, will not be met by crea
ensilage and cotton-seed: we must use the best co
raised on our own soil.

The relative value of ensilage and corn-stover, s
discussed, seems fairly settled in the Report (No. 19
New Jersey Experiment Station.

GREEN FODDER-CORN; DRIED FODDER-CORN; ENSI

Two very important questions are considred in the
ing bulletin: first, Is the loss of food by fermentatio
green fodder-corn is dried in stacks, greater, or le
when it is preserved in a silo? second, Is ensilage mo
able for milk-production than dried fodder-corn?

To study these questions, an experiment was begun
College Farm on the first of September, 1881. At th
the corn was in the milk, the stalks were very rich

sugar, and all conditions, apparently, were favorable for the trial.

The amount of available green fodder-corn, by actual weight, was ten tons. Of this, one half was arranged in the field in fifty small stacks; while the other half, after it had been cut by horse-power into lengths of three-sixteenths of an inch, was closely packed in a silo of about twelve tons' capacity. The analysis of a sample, taken, with the utmost care, to represent the entire quantity used in this experiment, gives the chemical composition of the corn before it was affected either by loss of moisture or by fermentation.

About the last of November, after an exposure to the weather of nearly three months, twelve hundred pounds of the dried stalks were passed through a Lion cutter and crusher, then thoroughly mixed and sampled. The analysis of this sample, compared with that of the original green corn, shows the changes which occurred during the process of field-curing.

On the 23d of December the contents of the silo were found to be in an excellent state of preservation. A sample taken eighteen inches from the surface was entirely free from disagreeable smell, insipid to the taste, and, as shown by the analysis, equal in all respects to the best ensilage which has yet been received at this station. The chemical composition of these three samples can be seen in the following table. It should be remembered that sample No. 1 represents the green corn, while samples Nos. 2 and 3 represent fodders obtained from this corn by two different methods of preservation.

TABLE No. I

	No. 1. Green Stalks.	No. 2. Dried Stalks.	No. 3. Ensilage.
	Per cent.	Per cent.	Per cent.
Water	75.00	39.37	74.70
Ash	1.58	4.63	1.95
Proteine	1.25	3.84	1.75
Fat	.22	.66	.27
Fibre	6.35	18.65	7.86
Carbohydrates . . .	15.60	32.85	13.47
Total	100.00	100.00	100.00

On account of the different amounts of water samples, their relative compositions are not pla Comparisons between them can be easier made by the results in another table, in which the compos hundred pounds of the dry matter of each sample Table No. II. is computed for this purpose.

TABLE No. II.

	No. 1. Green Stalks.	No. 2. Dried Stalks.
	Per cent.	Per cent.
Ash	6.32	7.64
Proteine	5.00	6.33
Fat	.88	1.09
Fibre	25.40	30.76
Carbohydrates . . .	62.40	54.18
Total	100.00	100.00

The ash of corn-stalks is that portion which c destroyed by fire. It is not in the least affected b tation, nor is it probable that its total amount wa way changed, either after the corn was packed aw silo or after it was stacked. It is therefore ado standard in comparing the above analyses.

It has been shown that one hundred pounds of corn contained seventy-five pounds of water: four pounds, therefore, of this corn, would have yielded dred pounds of dry matter containing six pounds a two hundredths of ash. The question now is, W weight of dry matter in the ensilage and in the fi stalks, which contains six pounds and thirty-two hu of ash? A simple calculation from the figures in T II. gives the following results:—

TABLE No. III.

	No. 1. Green Stalks.	No. 2. Dried Stalks.
	Pounds.	Pounds.
Ash	6.32	6.32
Proteine	5.00	5.24
Fat	.88	.90
Fibre	25.40	25.44
Carbohydrates . . .	62.40	44.82
Total weight dry matter .	100.00	82.72

Eighty-two pounds of the dry matter of the ensilage, and eighty-two pounds and three-quarters of the dry matter of the field-cured stalks, now contain the same weight of ash which one hundred pounds of the dry matter of the green corn contained. During the process of field-curing, therefore, four hundred pounds of green corn lost seventeen pounds and one-quarter of dry matter, while four hundred pounds of green corn packed in a silo lost eighteen pounds of dry matter. Table No. III. shows further, that neither the field-cured corn nor the ensilage suffered a loss of proteine, fat, or fibre, but that the total loss fell upon the class carbohydrates, which includes sugar, starch, etc., — the least costly ingredients of fodders.

Admitting, now, that quite as much of the dry matter of green corn was preserved, in this experiment, by field-curing as by packing in a silo, there remains still several important questions to be considered, — first, Will cows eat the dried corn-fodder as readily and with as little waste as they will eat ensilage? second, How does the milk of cows which are fed dried fodder-corn compare in quantity and quality with the milk of the same cows when ensilage is used?

A feeding-trial was begun on the sixth day of December for the purpose of studying these questions. Four cows were selected from the herd, placed side by side, fed, watered, and exercised at the same time, and for sixty consecutive days treated in all respects as nearly alike as was possible.

During the first period of twenty days, all four cows were fed the same daily ration, made up, for each thousand pounds of live weight, of the following substances: —

	Fat.	Proteine.	Carbohydrates.
	Pound.	Pounds.	Pounds.
20 pounds of dried fodder-corn, containing	.10	.57	7.08
3 pounds winter wheat bran, containing	.10	.40	1.38
30 pounds brewers' grains, containing,	.40	1.58	3 00
Total digestible food . . .	.60	2.55	11.46

The digestibility of the dried corn is here assumed to be the same as green corn.

During the second period of twenty days, the
for two of the cows was the same as during the
the other two were fed ensilage instead of dried
For each thousand pounds of live weight this se
was as follows: —

	Fat.	Proteine
	Pound.	Pounds
50 pounds of ensilage, containing .	.10	.64
3 pounds winter wheat bran, containing	.10	.40
30 pounds brewers' grains, containing,	.40	1.58
Total digestible food . . .	.60	2.62

The digestibility of the ensilage is here assum
same as green corn.

This ensilage-ration was fed to all four cows
third period of twenty days.

The dried fodder-corn, as stated above, w
crushed in a machine, which leaves it in such
that cows can eat it easily. After the first da
the first period, the dried corn-ration was ea
waste. During the second period, one of the c
unable to eat all of the harder pieces of ensilage.
wasted, however, was regarded as too small to b
account. The facts, therefore, seem to show
fodder-corn, when cut and crushed, is eaten quit
and with as little waste, as ensilage.

During the entire experiment the cows were n
daily, — at four A.M. and at four P.M. The milk
was weighed separately, and its weight at once r

Analyses of the milk were made on five cons
in each period. For this purpose sample No. 1
the total daily yield of cows I. and II., while s
represented that of cows III. and IV. Resul
when the cows were fed ensilage are for the sake
son printed in heavy type.

	I.	II.	III.	IV.
Calved . . .	Nov. 14, 1881.	Nov. 23, 1881.	Aug. 1, 1881.	Aug. 1, 1881.
Served . . .	Jan. 27, 1882.	Jan. 7, 1882.	Sept. 18, 1881.	Oct. 1, 1881.
Yield of milk during first period . .	Pounds. 624	Pounds. 540	Pounds. 339	Pounds. 350
Yield of milk during second period .	624	526	340	401
Yield of milk during third period . .	579	500	300	386
Total yield of each cow for 60 days .	1,827	1,566	979	1,137

In the following tables, cows I. and II. form herd No. 1; cows III. and IV., herd No. 2. The analytical results given below are *averages* drawn from the daily determinations of the milk of five consecutive days in each period.

	Herd No. 1.				
	Specific Gravity.	Total Solids.	Butter.	Proteine.	Sugar and Ash.
First period . . .	10,340	13.55	4.27	3.31	5.87
Second period . .	10,327	13.55	4.49	3.11	5.95
Third period . . .	10,330	13.87	4.58	3.20	6.09

	Herd No. 2.				
	Specific Gravity.	Total Solids.	Butter.	Proteine.	Sugar and Ash.
First period . . .	10,340	13.87	4.27	3.43	6.17
Second period . .	10,343	14.01	4.42	3.41	6.18
Third period . . .	10,346	14.51	4.53	3.59	6.39

As cows advance in their periods of lactation, the per cent of solid matter in their milk gradually increases, while the yield of milk, as is well known, decreases. A second table is therefore given, in which the absolute amounts of butter, proteine, etc., yielded by each herd during each period, are compared.

	TOTAL SOLIDS.		B
	Herd No. 1.	Herd No. 2.	Herd No.
	Pounds.	Pounds.	Pounds
Total weight yielded during first period	157.7	95.5	49.7
Total weight yielded during second period	155.8	103.8	51.6
Total weight yielded during third period	149.6	99.5	49.4

	PROTEINE.		SUGA
	Herd No. 1.	Herd No. 2.	Herd No.
	Pounds.	Pounds.	Pounds
Total weight yielded during first period	38.5	23.6	68.3
Total weight yielded during second period	35.8	25.2	68.4
Total weight yielded during third period	34.2	24.6	65.7

A summary of the facts shown in the above ex
is as follows: —

First, When the green corn was dried in stack
of food was less than it was when the corn was pa
silo.

Second, When dried corn-fodder was cut and c
was eaten by the cows under experiment quite a
and with as little waste, as ensilage.

Third, In three cases the yield of milk was not
when ensilage was substituted for dried corn; bu
case, ensilage caused an increase of eighty-seven
milk in forty days.

Fourth, In the mixed milk for twenty days of he
ensilage caused no increase in the yield of total soli
while in the milk of herd No. 2, for the same period,
a gain of eight pounds and one-third, or seven per c

GEO. H. COOK,

NEW BRUNSWICK, N.J., Feb. 20, 1882.

Other experiments of the New-Jersey station prove that fodders (such as clover, hay, and wheat-straw) and foods (such as brewers' grains or roots made into rations containing the same amount of digestible material as rations of ensilage) are comparatively of the same value, both to sustain animals, and produce milk. Experiments in this direction lead the director of the station to publish this result: "Ensilage can produce no more milk than any other fodder which contains an equal amount of food." If this ensilage is merely a substitute, its value to us is to be determined by its relative cost. Experiment, and the practical judgment of our farmers, will determine this question after another season.

The discussion of these questions has been of incalculable value. Never before has there been so thorough an appreciation of the maize-plant as now. The value of dried corn fodder, hitherto but little understood by the large number of farmers, has been made apparent by the experiments of men on all sides, and spread far and wide by means of the institutes and farmers' clubs. Other fodders (millet, rye, oat-straw), when fed with the same or a less amount of nitrogenous food than is usually fed with ensilage, have given very valuable results. It is found that an acre of good soil, kept active, well worked, and fertilized for each crop, instead of lying idle for three-fourths of the year, may, by close succession of crops, as winter rye (cut for hay), millet, corn-fodder, or barley in summer and fall succession, produce enough to carry a much greater number of cattle than we have done in the past.

Our experience in this important matter should convince all of the necessity of a thoroughly equipped experiment station. It is not to our credit that we are compelled to look to the experiments of distant States.

PASTURES.

A large portion of the land of the Commonwealth is held as pasture. In a crowded community of manufacturing districts, and many populous cities, we reserve wide stretches of upland, over which cows wander for a few months in the year, and from which the farmer possibly imagines that he derives a profit.

These pastures are the constant topic of agricultural discussion. "How to improve the fertility of our past a standing question of clubs and institutes, only a in theory.

The original fertility of the soil has been for gen sent into the towns in the diurnal milk-can, and t savings of the business put into the banks of depo loaned to those who build up towns, or used to constr roads that bring butter from Iowa to Boston, cheape can be carried thither from Worcester or Franklin. while, the moss-grown pasture, robbed of fertility, g to a tangled maze of bushes.

Briers, spoon-wood, hardhack, wood-waxen huck and similar usurpers take the place of grasses: he constantly recurring question of improvement.

In other countries pastures are not exclusively neat-stock and horses. In Europe and the British sheep and hogs are pastured; and these animals ma high degree of fertility at the same time that a p husbandry is carried on.

We are not accustomed to pasture pigs; and many without thought, deny that the pig is a grazing Pigs can be very profitably grown in pasture; an herds of them are kept in small compass, and fed wit wonderful results in the way of fertilization can be a upon worn-out soils.

Sheep-husbandry is a sure means of restoring an taining fertility; but the present relation of sheep a renders it useless for our benefit.

If the matter is brought to the cold light of fig would probably appear that the greater part of our land is really not worth renovating. Much of it stony, and distant. Fencing is a great expense. T is in use only three or four months in the year. C arable fields are not well tilled; the fault of our being in spreading over a wide expanse of land, in concentrating labor upon fewer acres. Progressive incline less to pastures, and more to cultivation. In wandering over barren tracts of inhospitable pastu cows are kept in convenient yards at home, and f green crops raised, in rotation, upon land that is ne and not run to waste. Important information in r this method of feeding will be found in subsequent p

STATISTICS OF AGRICULTURE.

I am enabled by the assistance of Mr. Carroll D. Wright, chief of the Bureau of Labor Statistics, to give the results of the United-States census, so far as they show the condition of agriculture in the Commonwealth.

These I compare in the following table with the United-States census of 1870 and the State census of 1875, showing the condition and progress of our agriculture for ten years past. The State census of 1875 was the fifth census of the industrial statistics of the Commonwealth, and was taken with great thoroughness. It shows that the total domestic and agricultural product of the farms of Massachusetts for that year was $41,521,799. The total value of farm property was $209,974,877. The figures given from the hitherto unpublished statistics of the United-States census of 1880 deal only with property, products, and labor on farms, and do not include horses, cows, or products otherwise kept or produced. Judging from the figures given, our census of 1885 will record a gratifying increase; and it will appear that our agriculture not only holds its position, but makes a relative advance with the other industries of the Commonwealth.

	1870.	1875.	1880.
Horses	41,039	53,218	59,629
Working oxen	24,430	16,308	14,571
Milch cows	114,771	126,034	150,435
Other cattle	79,851	81,916	96,045
Sheep	78,560	58,773	67,979
Swine	49,178	42,255	80,123
Barley	123,071	46,884	80,128
Buckwheat	58,049	52,127	67,117
Oats	797,664	457,710	645,159
Wheat	34,644	13,749	15,768
Rye	239,227	250,113	213,716
Eggs (doz.)	–	3,446,530	6,754,179
Tobacco	7,312,885	5,993,666	5,369,436
Hay	597,455	671,130	684,679
Milk (gals.)	15,284,057	35,698,150*	29,662,958
Butter	6,559,161	7,922,431	9,655,587
Cheese	2,215,873	1,280,234	829,528
Corn	1,397,807	1,040,290	1,797,768
Potatoes	3,025,446	3,630,546	3,070,389

* These figures show the total production of milk, not only what was sold, but the quantity used in the manufacture of butter and cheese. The figures in the other columns indicate only the number of gallons actually sent to market.

PUBLIC MEETING OF THE BOARD

AT BRIDGEWATER.

THE country meeting of the Board for 1881 was
the town-hall in Bridgewater on the 6th, 7th, an
December. Mr. JOHN LANE of East Bridgewater,
of the Plymouth County Agricultural Society, c
meeting to order on Tuesday, Dec. 6, at ten o'cl
said, —

In behalf of the Plymouth County Agricultural
I bid the State Board welcome to this town. Also
Bridgewater Farmers' Club bid you all welcome. T
itants of East Bridgewater, where I reside, also
welcome.

I will now introduce to you Dr. L. G. LOWE o
water, who will deliver the opening address.

OPENING ADDRESS.

BY DR. L. G. LOWE.

GENTLEMEN OF THE STATE BOARD OF AGRIC
AND FARMERS OF MASSACHUSETTS, — We bid you
welcome to the old town of Bridgewater.

Although as regards age and reputation it cannot
pared to that venerable town in the eastern par
county which was settled in 1620, and to which o
and our Nation are so much indebted for their gro
prosperity, Bridgewater can justly claim to be th
interior settlement in Plymouth County.

It was originally a plantation belonging to Duxb
ing been purchased as such, in the year 1649, of the
Ousnamequi, for the following consideration: vi
coats (a yard and a half in a coat), nine hatchets, ei
twenty knives, four moose, and ten yards and a half o

This plantation was incorporated as a distinct to
year 1656. As incorporated, the territory includ
some slight variation in boundaries, the area now co
Brockton (formerly North Bridgewater), East Brid

West Bridgewater, and our own town, which was then known as the South Parish. One after another the North, the East, and finally the West Parishes withdrew from the parent town, leaving the South Parish in the possession of the name and the records of the old mother of them all. Pardon us if we feel a little proud of the name, and of claiming so many prosperous children, one of whom has outstripped her parent, and indeed all the towns of the county, and has reached the dignity of a city, — the only township in the county entitled to that honor.

As you are now favoring our town with a visit, you may be disposed to learn from us, before you try to enlighten us with the wisdom here assembled, what we have to say for ourselves. We shall begin our story by boasting a little. We claim to have the best agricultural grounds and buildings in the State; and, if the New-England Agricultural Society were not apparently permanently wedded to Worcester County, we should be tempted to try to induce her to look with favor on our enclosure over yonder river. But if any one dare dispute the superiority of our grounds, or of our venerable society (the oldest but one in the State), we defy any man from any part of the Commonwealth to dare to deny that we have the best agricultural president in the whole State. We only regret that his white locks remind us that we cannot have him always.

So anxious are we to make the most of him while we have him in office, that, with the aid of his own town and of the county, we have actually cut down yonder great hill lying between us and his homestead in East Bridgewater, that we may the more easily avail ourselves of his well-known hospitality, and feast our eyes on his fertile fields and his well-fed favorite Jerseys.

Our county society was formed in 1819; and it is a remarkable fact, worthy of mention, that one of our oldest and most interested members, Mr. George W. Wood of Middleborough, has attended every one of its exhibitions.

Besides the agricultural grounds, our town presents other attractions. The normal school, established here by the State because of the liberal contributions of our citizens for that object, is an institution of which we feel that we have reasons to be proud. It has been located here so long (since

1840), that it has become fully identified with us.
proportion of the teachers in the county are gradu
this school; and lights from this centre are shining all t
the length of our land, from Maine to California.
bers at the present time about one hundred and seve
students. Its educational advantages have attracte
to our town as a place of residence. If any attendi
meeting desire to visit this institution, they will b
heartily welcomed there by the principal and his assis

There is also within the limits of our town (abo
miles distant from here) another State institution o
ferent description; but we regard it as a model of it
and important to us in its relations to agricultu
presents one of the best illustrations of the capac
Plymouth-county soil under proper care and culture.
of us can remember when the farm of the State wor
consisted mainly of wild woodland and pasturage.

Under the wise management of the former superint
supplemented by the judicious labors of his compete
efficient successor, the present incumbent, it is not sur
in the amount of the product it yields, by any farm o
size, at least in this section of the State.

There are two manufacturing establishments with
town, to which we ought to allude in passing. One o
our extensive iron-works, is situated about a mile nort
this hall, on the right of the railway, as we enter tow
Boston. This is an old corporation, with a large capit
employing about five hundred hands. They have the m
ry and conveniences here for doing the heaviest wor
in wrought and in cast iron. They have this year
factured and sent to Norfolk, Va., an immense cotto
having more than double the capacity of any such pr
viously constructed. Its entire weight is two hundr
eighty-five tons. One of the castings alone weighed
thousand pounds. It is about sixty-six feet in heig
its capacity for pressure is six thousand tons on a
cotton. In wrought iron almost every thing is ha
out here, from the heaviest steamboat shaft, weighin
six tons, down to the little nail which fastens that sho
our worthy Secretary Russell so utterly detests on
noble animal which he so ardently admires.

Our other principal manufacturing establishment is the cotton-gin factory. Gins have been made in this place and in the adjoining town of East Bridgewater for many years; and as their manufacture in this State has been confined chiefly to this immediate vicinity, a brief history of the origin of this enterprise may be interesting.

About seventy-five years ago Mr. Eleazer Carver, one of our townsmen (now deceased), when a young man, started for the West and South on a tour of inspection, and in pursuit of employment at his trade as millwright. He sailed down the Ohio and the Mississippi alone in a skiff. It is said that on his way down the Ohio he stopped at a village on its right bank, where the city of Cincinnati now stands, to purchase provisions, and procured all the pork that town then afforded in laying in the small stock required for his use. After spending some years at the South in repairing cotton-gins, and subsequently in building some of these machines, he returned home, and formed a stock-company for their manufacture, of which company our universally esteemed venerable townsman, the Hon. Artemas Hale, was chosen the agent. Mr. Hale is now in his ninety-ninth year. He is the oldest ex-member of Congress living. He is in good health, and I trust will honor us with his presence at this meeting. Our town is deeply indebted to him for much of its prosperity and attractiveness. Some years ago a passenger on the railroad, having the building a little way west of the station here pointed out to him as a cotton-gin factory, innocently remarked that he had often heard that old boots, and various other miscellaneous and heterogeneous things, were used in the manufacture of the "critter," but he never before knew that gin could be extracted from cotton. Happy would it be for our community if no stronger beverage were used than that which could be drawn from the cotton-boll.

Our town is generally regarded as quite conservative. It may be superfluous to add, after what has been said, that we have sometimes heard it hinted that we are slightly self-conceited. So slow are we in our movements, that we have received the romantic appellation of "Sleepy Hollow" (not, however, because of our schoolmasters manufactured in yonder hall). It is generally acknowledged, however, that, when we do get waked up, we move all together, and in earnest.

Until comparatively recently, no active measures hav
taken to commemorate the services of those who wen
our town during the late Rebellion, and sacrificed thei
in the defence of their country. After most other
had erected suitable structures for this praiseworthy
instigated by zeal and earnest efforts of a very few wh
an active interest in this matter, we decided to foll
example set in other places, and are now, through the
ity of friends, and especial appropriations by the tow
structing a substantial memorial hall and library b
combined. The structure is of brick and stone, of the
Anne style of architecture, and is only a few rods fro
hall.

But you may say that you have come here in the i
of agriculture, and would like to have us keep that
mind, and tell you something about the nature of the
Plymouth County, the crops raised, and our system
bandry,—in a word, "what we know about farming."

As you are probably well aware, agriculture is n
leading industry in the Old Colony, the soil not being
by nature as in most other parts of the State; but, n
standing this drawback, our comparatively sterile s
some redeeming qualities. It is for the most part lev
but slightly encumbered with stones, large or small:
is admirably adapted for the use of machines.

If the city of Boston, instead of trying at an en
expense to rid themselves of their waste material by
ing it from the face of the earth, and depositing it
island of the *moon*, could only discover some practic
of condensing it, and forwarding it to us, old Mother
would soon become so fresh and fair that she would not
herself when she looked in the glass, and the genial pre
of our society would not have his quiet dreams dist
like Hamlet's, by that ever rising ghost, our eight-tho
dollar debt.

While it is a common saying in Plymouth Count
"farming doesn't pay," some of our citizens are demo
ing practically that *they*, at least, can get a comfortab
ing from the soil. They do not aim at becoming Ast
Vanderbilts; but they love their calling, and are will
forego the so-called luxuries and the superfluities of

the simple but no less substantial enjoyments and blessings which honest toil in the fresh air and bright sunlight secure to those who love to sow in the spring, and to gather the golden harvests in the fall. Their sleep is sweet, and they have but little fear of blackmailers or assassins. There are farmers in the Old Colony, who, I believe, enjoy as much solid comfort to the square inch as any master mechanic, merchant prince, Wall-street broker, or bloated bondholder.

The soil of our county is quite diversified; varying from sandy upland, which is left to the growth of forest-trees, mostly pine, oak, birch, and maple, — through sandy loam, which, with sufficient enriching, yields good crops of rye, oats, Indian corn, and potatoes, — down to meadow-muck, which, when well drained and properly cared for, yields excellent crops of Timothy and red-top. The Hon. Velorous Taft, who was present as State delegate at our last exhibition, told us that Indian corn can be raised east of the Connecticut River at a less cost than it can be obtained from the West. If he is right, we can safely advise our farmers in this section to grow corn; for I believe it is a fact, that as large yields of this cereal have been obtained here as in any part of the State. The writer of this has land on his farm where upwards of one hundred bushels to the acre have been raised; but it was when it belonged to a former owner, and a better farmer than the present possessor of the field can ever hope to be.

Root-crops are raised among us to a considerable extent, and some of our farmers have ventured a little in the sugar-beet direction; but I believe the majority of these have about concluded, that, so far as the actual profit to the raiser is concerned, it would be about as well to try to squeeze blood from a turnip as to extract sugar from the beet advantageously at present prices. Our president raises a variety (*Lane's* Imperial, we presume), which, however, he feeds to his stock, not believing it profitable to have their liquid sweetness drawn out by the Franklin Company. If these remarks happen to provoke a discussion here on the sugar-beet question, it will only tend to throw more light on this saccharine subject.

President Lane would have us sow wheat, and he thinks every farmer should be fined who does not raise at least an acre of that grain every year; but most of them soil is not well adapted to its culture.

Some of the farmers in this section make a sp garden vegetables; others, of small fruits. Many the latter, as strawberries and blackberries, find a soil in Plymouth and Bristol counties. Of the la pears do admirably, and apples fairly, if we have fight the canker-worms and the borers. Peache perfection thirty years ago; since then they stricken with the yellows, and have ceased to ma fruit. Of late years they seem to be improving, have hopes that this delicious and healthy fruit be added to our list.

If you inquire what is the relative condition of a in the county as compared with a quarter of a ce we reply unhesitatingly that it has improved. A of this, we cite the fact, that, instead of one a society, we now have five, located in different secti county, and holding exhibitions regularly every notwithstanding the fact that the parent society birth to several healthy children, she is still in the life, and able and willing to labor diligently for th all. Some persons are disposed to criticise her be does not accomplish more; but when we reflect years she has distributed more in premiums than a society in the State save one, and has within the la years greatly enlarged and improved both her gr her buildings, and this very year added a grand st expense of over three thousand dollars, more tha of which was defrayed by private subscription, it look as though our mother-society were quite y last legs. To be sure, some years ago we greatl our main building, and then added a piazza, a c another ornament in the shape of a good-sized (which last embellishment has been a great b many); but all this need not discourage us. debt was incurred, we have expended four thousa for additional buildings required, and at the same reduced our obligations from thirteen thousand dol to eight thousand dollars. And what have we to this debt? Large and substantial buildings, all in g and sixty-five acres of land admirably adapted to our use. We are not lost in the woods yet. Under the guidance of our gallant leader, who knows no such word as *fail*, we are gradually bettering our condition; and if all those who complain will only help us with their heads and their pockets, the debt will soon become so small as to cause no one any uneasiness.

Besides these societies, we have now quite a number of farmers' clubs in the county, one of which, and I believe the oldest, celebrated its tenth anniversary last evening, having held its meetings regularly every winter since its organization. Farmers' institutes are held also several times a year by a number of the societies; and our honorable secretary tells us that none which he has visited in the State have surpassed those he has attended in this county, under the auspices of the old society. It ought to be mentioned in this connection (that both sides of this question may be heard), that it is said to be a fact, that more land is given up to wood in this county than twenty-five years ago. This may be so; but I think it safe to say, that the acres *cultivated* receive more attention than formerly, and that the additional woodland consists mainly of poor pastures better adapted to wood than to feed. For the lack of good pasturing, many of our farmers are in the habit of soiling their cattle, either wholly or in part. If the ensilage system which some in the county have adopted — none, however, in this town as yet — comes into general use, still more of our poor pastures will be given up to wood. We expect to learn more about the silo before this meeting is over.

Both our ploughed land and our grass-fields are enriched more liberally than formerly. The use of the special or commercial fertilizers has grown up here almost entirely within the last quarter of a century. The farmer who does not employ these at all is now the exception.

Another evidence of the advance of the farming interests is the improvement in stock in this section. To our neighbor East Bridgewater belongs the honor of the introduction of Jersey cattle into the county. In 1854 Mr. Seth Bryant, who until recently lived in that town, imported a Jersey cow with her calf. In the following year Hon. Aaron Hobart of the same town imported two cows and a bull of

the same breed. From these two importations were
great proportion of the improved stock in Plymout
There was for a time quite an opposition to this br
part of the farmers: but in 1865 there were at leas
Jersey bulls in the county; and now every farmer i
having, at least, some Jersey blood in his herd.

In June last Mr. Warren A. Howard of Broo
chased six heifers and a bull of the Holstein bree
effect this may have on our future stock we canno

We ought not to close without alluding to an
started a few years ago among farmers in this
disposing of their milk in Boston.

In the fall of 1877 a company was formed, unde
of the "Old Colony Milk Producers' Association
purpose of forwarding their milk to Boston by r
of a messenger employed by them to take charge o
train, and to dispose of it in the city. Their ai
to supply the consumers directly from the farm, w
intervention of either contractors or peddlers. As
ever, they are selling mostly to the peddlers.

This is the pioneer movement in this directi
State, and as such deserves the encouragement o
ested in benefiting the condition of the farmer.

The nearer it is practicable for the producer to
consumer, the more of the profits will reach the poc
former, and, I think we may safely add (so far
concerned, at least), the better it will be for the
This company has fought its way against oppo
discouragements of various kinds, until, at the pre
it is unable to supply the demands made for mi
desirous of increasing its membership and the nun
cans. Great credit is due to the officers of this a
who have devoted much time and attention gratu
establishing and sustaining this organization.

And now, gentlemen of the Board, in yielding t
you, let us close by thanking you for appointing t
meeting in our town.

When our president invited you here, he was
by a somewhat selfish motive. Being a frank man
confessed it. His hopes and expectations were
coming here you would help the cause of agri

general in this region, while you would, indirectly at least, advance the interest of the Plymouth County Society in particular. If you accomplish the first object, as we know you will, the second will follow as certainly as the harvest does the seed-time; and whilst he who invited you will feel well repaid, the whole of Plymouth County, the home of our fathers, and so important a part of the right shoulder of our grand old Commonwealth, will receive lasting benefit from your few days' sojourn in the heart of the Old Colony.

The Chairman then introduced Dr. **GEORGE AUSTIN BOWEN** of Woodstock, Conn., who read the following lecture on

THE DIGESTION AND WINTER FEEDING OF DOMESTIC ANIMALS.

In presenting this paper to your consideration, I do not advance any new theories or methods of my own, but content myself with a brief survey of the subject, presenting only a few of the leading facts, and leave to you as intelligent farmers to elaborate them by your discussion.

To my mind this is a very practical question for New-England farmers to consider; for the old methods of farming, which were only allowable in a new country, are rapidly passing away. The accumulated fertility of centuries has been wasted by a few generations; and the question now comes imperatively to every thoughtful tiller of the soil, how to maintain his flocks and herds upon the lands despoiled by his fathers. Happily, science is ready to aid us in this matter, and is now developing the many questions pertaining to agriculture. The successful farmer of the future will be the scientific man, who will accept the facts presented, and who will know and be able to tell the reason why, for all that he does. The world grows in this direction; and we must keep pace with it, or lose our position. The man who simply throws an armful of hay three times a day before his stock, and considers himself the gainer by all that they do not eat, will be unable to successfully compete with his neighbor who selects those articles of food which he knows contain the greatest amount of nutriment at the least cost, and feeds them to his stock in accordance known laws of digestion and assimilation.

In the demand for food the whole universe stand equality, vegetable and animal life alike requiring plant, however, differs from the animal in its retaining all the increase derived from its food, al from both the soil and the atmosphere remainin nently in its structure a component part of the wh is ever increasing in size (excepting in some of t forms which shed their leaves, blossoms, and se they have performed their functions). But in t economy a constant change is taking place, — d death in the midst of life. Where the most life a exist, there will be found the greatest amount of de animal soon attains its size; and the further supply only necessary to repair the waste that is ever go the nervous tissues, and for the creation of heat. of the system, however, is not equal in all. The de muscles move quickly, and whose nervous power keenest order, has a far greater amount of waste tha and unenergetic bear, who passes a portion of th least in northern latitudes) in hybernation; which is an illustration of the rapidity of nutrition and in this condition there is no muscular motion furth slow respiration and pulsation of the heart, and peristaltic action of the intestines, the accumulated warm season being fully sufficient for the maint life during the most protracted winter.

The age of the animal has also much to do amount of food required; the young and growi ing a far greater amount, in proportion to their those who have reached maturity. Different perio life also require varying amounts of food. As age less is eaten than during the more active periods of

We all know that the size of plants can be aug increasing the food-supply: instances of such are f all. The same rule holds good in the case of anim more food that can be digested, the larger and mo the animal will be. But there is a fact beyond The old saying, that every part eaten strengthens a does not hold good exactly: but it is a well-kn among scientists, that each part can be strengthened by appropriate feeding; thus, blood-corpuscles are promoted by the feeding of iron. Non-azotized or farinaceous food favors the formation of fats; and those rich in albuminoids or nitrogenous matters develop the bones, and give tone and quality to the muscles.

This development by special feeding is quite often instanced in the case of the honey-bee (*Apis mellifera*). If by any chance the hive is deprived of its queen, the bees choose a cell intended for a neuter, enlarge it somewhat by destroying those around it; and when the larvæ emerges, it is fed with what apiarists term royal jelly, — an aliment of a very stimulating nature, and quite different from the bee-bread intended for the workers. The neuter thus treated comes out a different creature from what was the original intention, for it becomes a true queen. The sexual organs are perfected, the proportionate length of the body and wings are changed, and also the shape of the sting, tongue, and jaws. The hollow in the thighs, in which the pollen is carried, has wholly disappeared; and the power to secrete wax has been lost. It is supposed that the greater part of this change has been brought about by feeding.

There are two prominent sources of demand for food, — the waste of the body, of which we have just spoken, and the maintenance of animal heat; for in all the higher animals and birds, and to a limited extent in insects, there is a process going on analogous to ordinary combustion. The carbon and hydrogen which are directly supplied by the food, or which have for the time been employed in the composition of the body, are set free by the union of oxygen obtained by respiration, and give off as much heat as though the same materials had been consumed by fire in a furnace.

It is perhaps proper to remark, that the evolution of heat is not confined to the animal kingdom alone: the higher orders of plant-life show by many curious experiments that they possess it to an eminent degree.

The temperatures of mammalia ranges from 90° to 104°, although higher temperatures are sometimes found; and, singularly enough, those animals inhabiting the coldest regions have shown it to the greatest degree, the arctic fox having been found to give a temperature of 107° when

the thermometer showed that of the surroundin
14°. The temperature of the human body is usu
at 98°; although parts of it are higher, the blood
reaching 101½°.

The classification and composition of food w
interesting question to consider, for chemistry has
to point out the most economical methods of fee
production of muscular tissue, fat, or milk; but t
is a long one, — too long for an article like this
seems easier than that an analysis of the vari
products should be made, and of the proper fo
having a knowledge of both, we can supply the o
the other; but in actual use the elaborately pre
of the chemist do not meet all the requireme
case, owing to the many different ways these agen
each other, or the power all elementary bodies hav
ing active or passive conditions, — a state which
calls allotropism.

But all food, to a certain degree, can be clas
divisions generally being recognized, —

First, Carbohydrates, or compounds which u
with oxygen, such as sugar and starch.

Second, Hydrocarbons; that is, unoxidized hyd
pounds, as oils, fats, etc.

Third, Albuminoid bodies, or those that co
gen. To this class belong albumen, caseine, fibri

Fourth, Salts, of which the chloride of sodiu
salt) and phosphate of lime are examples.

Foods are sometimes called nitrogenized or tis
or non-nitrogenized or heat-making.

I know of but one article of food that is pe
composition for the uses required of it; and that
its purpose for a limited period of the animal's li
of course, to milk, on which all our farm-stock d
vigorous start in life. In examining its composit
find many suggestions that we can advantageous
in our young and growing animals after they have
nursing period of life, and begin to receive their
man.

The composition of milk is as follows, alth
sample will vary somewhat: —

Water	873
Caseine	48
Sugar of milk	44
Butter	30
Phosphate of lime	2.80
Other salts	2.70
Total	1,000.00

Nearly nine-tenths is water. Why so undue a proportion? Simply that the necessities of the system may be carried out. These are to remove the solid effete materials of the body in a state of solution, — the production of cold by evaporation thus regulating the temperature of the system, — and to give a due amount of fluidity to the blood.

When we consider that two-thirds of the weight of the body is water, we will cease to wonder at the quantity that is contained, not only in this article, but in the majority of aliments. From this we would draw the inference, that one of the great requisites of the farm is a suitable and abundant supply of water. A good farmer told me a few weeks ago that he could never raise good pigs on very solid food; he wanted it made sloppy with water: and besides, he added with a knowing wink, "it is cheap and filling."

The article caseine represents the nitrogenous principle (the tissue-making), and forms the muscles (gelatinous and soft tissues) of the young animal, and supports those of the old as well. The chemist and the practical stockman agree in this; for the latter, who wishes to give good muscular development, feeds those materials rich in the albuminoids, such as bran, pease, brewer's grains, etc.

While speaking of caseine, it is proper to remark, that it presents nearly the same composition as albumen, showing that the young animal and the newly-hatched chick are nourished by the same food. Fibrine is also closely allied to caseine and albumen, and, when coagulated, may be changed into the latter by the addition of the nitrate of potash. The digestive juices also effect the same change in the stomach. It is also interesting to know, that during the incubation of eggs caseine is produced from albumen.

The third article, sugar of milk, is converted during the digestive process into lactic acid; and the butter, which follows next, is partially used for the production of heat, and partly

stored for future use in the form of fat. And h
in regard to this: Of what use is fat in the syste
up all the vacant spaces, thus giving rotundity t
which is always pleasing to the eye; but it is of
than this, for it produces a high temperature b
tion. It aids digestion by metamorphosis; it aid
opment of cell-life, as the nuclei of some cells
from it; and, as fat is such an excellent non-conduc
it enables the body to economize its warmth. It al
friction from muscular action. Thus we see its u
cannot well obtain it, unless we feed those articles
contain it; and among these, and at the very head
stands oil-cake, which is largely produced in this co
the American farmer allows it to be taken from hi
and transported to his English brother, who fully
appreciates its value.

The phosphate of lime is necessary for the deve
the bones of the body, containing, as they do, 51.
of this substance; and 11.30 per cent are of the
Every farmer knows how necessary it is in the
poultry; for, if this substance is defective, his he
sent him with soft-shell eggs. It is just as neces
young steer or heifer, and is not found to any g
in their food or that of pigs: therefore a little f
occasionally will be eaten with evident relish.

The chief one of the other salts is the chloride of
common salt, which is of the most special importa
animal economy, as by its decomposition it gives h
acid to the gastric juice, and soda to the bile a
salivary secretions, and is found in the blood in
phosphate of soda, which enables the plasma of t
hold carbonic acid in solution, and thus convey
lungs, freeing the body from a deadly poison.
that a regular and uniform quantity of salt is ne
the maintenance of life; but it should also be obs
it is not good economy to feed much of it to fatt
mals, for the reason, that, when soda is deficient i
the metamorphosis of albuminoid compounds can
fat and urea.

Having thus lightly touched upon the topic o
its requirements, let us as briefly glance at the

digestion, taking them in the regular order of their arrangement and action. Following the digestive tract, we find the teeth, mouth, œsophagus, stomach, small and large intestines, lacteals, thoracic duct, and the accessory glands. Each of these organs, when closely studied in regard to their anatomical structure and physiological action, fills us with ever increasing amazement; for they are more wonderful than any mechanism created by the hand of man. Indeed, the workings of nature indicate more clearly the existence of a divine Creator than all the dogmas of the whole religious world.

The teeth and mouth are so familiar to us that we will pass them by, and begin with the œsophagus, which is the passage connecting the mouth and the stomach; and its office is simply that of a canal to convey the food from one to the other. It is muscular in its structure, and is lined with a mucous surface, the same as the mouth.

In considering the stomach, it would be interesting to trace its development through all the forms of animal life, commencing with a cestoid entozoon, — like the tapeworm, which has no digestive tract, but whose whole surface seems to be a stomach of itself, absorbing by every part the nutritive juices in which it lives, — and carrying our observations through the various orders, in each discovering a more elaborate organ, till we come to that of the mammalia, who present the most complete of all, many of them being possessed of a compound stomach, or series of stomachs; and, as this is so intimately connected with our subject, we will the more closely study it, although compelled to pass over much that is interesting in regard to its anatomical structure.

The stomach of the horse is globular in its shape, is quite small in comparison to the size of the body, being size for size about half that of a man: that of the pig is very much like that of the horse; both of them might be called a simple stomach, as there is but one sack, or cavity. Cattle and sheep have a compound stomach; that is, a number of sacks, or cavities. The entire system of stomachs in the ruminant is divided into four compartments; the first being at the termination of the œsophagus, and termed the "rumen," "ventriculus," or "paunch." It is of great size, occupying nearly three-fourths of the abdominal cavity. The left side is elevated so high as to lie in contact with the left flank.

through which the trocar is passed in cases of ho second stomach ("reticulum," or honeycomb stor is called) has a very peculiar appearance in its inte sioned by the unequal folding of its mucous mem is here that the singular provision of water-cells which in the camel has been developed to an unusu enabling it to go for many days without receivir supply of water. This is developed more or less ruminants. The third stomach is called the "om many plies, from the peculiar manner in which t membrane is disposed, which is much like the l book. This is in order to bring the food in conta large surface of the stomach. The fourth stomac the "abomasum," or reed. This is the seat of the true digestion, the gastric fluid being secreted from It is the lining portion of this stomach in the calf nishes rennet, which, from its containing an org possesses the power of coagulating milk, as illu cheese-making.

The next division is the intestinal canal, which into two portions, called the "small" and the "la tines." Anatomists again subdivide each of thes present is enough for our purpose. The entire len intestinal canal in the horse is about ninety feet, or times the length of his body; the small intestine sixty-six feet, and the large twenty-four. That of sixteen times the length of the body, in the pro three to one as to large and small. The length in twenty-two times that of the body, and in the shee seven times.

The lacteals are very minute vessels, which con the villi of the mucous surface of the small intestine to a series of small glands called the "mesenteri and from these to more remote ones; growing larger every time, till they unite in a single one "thoracic duct," which is in the human subject size of a goose-quill, but grows smaller as its length which is about eighteen or twenty inches. It lies the spinal column, and empties into the subclavian of the large veins within the shoulder and near the

The accessory glands are the salivary glands of t the liver, which is the largest gland of the body; the pancreas; and the spleen.

Having thus stated the organs of digestion, let us again commence in the same order, and inspect the digestive process itself, and see how the food that an animal eats becomes a portion of the living structure; first stating the general principals of digestion, and then mentioning the departures from that rule shown by the various animals of the farm.

The first process is the mastication of the food by the teeth. This reduces the bulk, breaks up its structure, and, with the aid of the tongue, mixes it with the saliva. The act of swallowing carries it to the stomach, where it is thoroughly mixed with the gastric juice, which is secreted from minute glands within the mucous lining. The peristaltic or grinding action of the muscles immediately commences, and materially aids the process. The action of the gastric fluid is purely a chemical one, dissolving the food, thus making its absorption an easy matter. Some articles also undergo a complete change by having their component parts altered by this fluid. The food when dissolved is about the consistency of cream, and is called "chyme." It passes into the small intestine, where it receives the bile from the liver, and the pancreatic fluid from the pancreas. By the action of these agents, it is converted into a fluid of a whitish color, called "chyle," and a residuum, which passes on to the large intestine, and is excreted from the system. As the contents of the intestine move downward, the chyle is taken up by the villi, or mouths of the lacteals, and is carried into the mesenteric glands, where some change is supposed to take place in it, but which is not thoroughly understood: from thence it flows directly into the blood through the thoracic duct. The true office of the spleen is not known. This, then, is the usual course of digestion, omitting some of the minute anatomical structure and glands, and their physiological action. Let us now glance at the departures, gaining, if we can, any practical points that will aid us in feeding our stock at a profit.

Digestion takes place in the horse in about the way that we have stated; but there is a peculiar anatomical structure and consequent physiological condition that belong to this animal, that is of deep pecuniary interest to us. The large

intestine of the horse is developed out of all pro
the small; the colon, or head of it, being capable
four gallons of fluid. The stomach is comparati
as has been stated. The horse, as we know, will
quantities of water. This does not all remain in th
but passes through the intestine into the colon:
the practical point; if water is given immediate
after feeding, the food, and especially grain, is ca
it, and out of the stomach, and beyond the poin
can be properly digested, and is voided with the
the animal gaining but little benefit from it.

The simple form of digestion also takes place
but in cattle, sheep, and ruminants generally,
different. And here we see the wisdom of adapti
their original position on the earth: for, having
mies and but little means of defence, they must
expeditious in gathering their food; hence the lar
was given them in which to store it, and also th
returning it to the mouth for remastication, — "ch
cud," as it is called.

The only process that takes place in the paun
of softening the food; it generally remaining fro
to eighteen hours before it is returned to the mo
less than fourteen, and sometimes thirty. When
softened, it passes into the second stomach, or
whose principal duty seems to be to roll the food
balls, moistening it with water, and returning it to
Here it is remasticated, and some saliva added. W
swallowed, it does not go to the first or second sto
to the third, where it is more thoroughly macerat
ened, and prepared for the true digestion, which t
when it has slowly found its way into the fourth
where the gastric fluid only is produced.

A fact should be mentioned here which has an
bearing upon the administration of medicine to
The œsophagus does not terminate in the first stom
animals having a simple one, but is capable of
tended through the whole series. The food, wh
or liquid, may sometimes (at the will of the animal
peculiar constitutional conditions) pass into the
fourth stomach without a particle of it entering t

second. This explains why, in giving a medicine, it sometimes takes no effect; it probably having fallen into the paunch, instead of going to the end of the passage. Remedies should always be given in the liquid form, and be given very slowly: a ball would be sure to enter the paunch, and be useless. In the calf and lamb the first and second stomachs are of but little use, the food going to the true seat of digestion. In the mature animal, however, they are more directly utilized, as hay and rough fodder go to the first; water, to the second; and meal, only to the third, and even, in some instances, directly to the fourth.

The methods of feeding stock are of nearly as much practical importance in the results as the nature of the food itself. How often have we seen even as voracious animals as swine cloyed by too liberal feeding! and, when once cloyed, it is hard to bring them to an appetite again. The most profit is derived from stock that inherit strong, vigorous constitutions, and are kept growing, without any set-backs, till maturity, and then worked to the fullest capacity, even though it may somewhat shorten their period of usefulness. The animal must work in some way; and, when work ceases, expense commences.

Milch stock should be fed all that it will digest; and that is limited only by what they will hold. Give them time enough, and every particle in a well-filled paunch will be thoroughly digested. A period of rest should be allowed before calling the organs again into action by feeding.

Many, and I think the majority of stockmen, feed their swine and horses three times a day. As far as the horse is concerned, I think that this is the correct way; for his stomach is small, and, if fed less frequently, there is danger of its being too much distended. Its muscular action is prevented, the secretion of the gastric fluid retarded or suppressed, digestion is only partially performed, and the foundation for disease is received. But in the case of such a voracious creature as the hog, an animal that possesses the strongest of digestive organs, I think that his natural habit of eating about all the time might be so far considered as to feed him four times a day, and very young pigs at least five. But with regard to sheep and cattle the case is different: the enormous paunch will contain food enough to last a

much longer period; and twice a day, when well fe
sufficient. This is the manner that I would ad
ing, especially milch cows: Feed early in the mor
the poorest and coarsest fodder that you have to
and while they are eating it the milking should
formed. As soon as they have finished it, another
ing" of a better quality should be given, followed
of the best hay. In feeding in this way the cow
constantly eating, and will clean up all that is gi
As soon as the last feeding has been consumed, the
should be cleaned of any refuse left, and a feedin
given, to be followed by meal or bran. When the
done, water immediately, seeing that each anim
supply. A cow will drink more water after eating
will after she has commenced to chew her cud. Af
ing, she should be returned to her stall, or left to s
in a sheltered yard: she has then nothing more
afternoon, but will occupy her time in rest and slee
tatively chew her cud. In the afternoon the feedi
commence at three o'clock, and proceed in the sam
as in the morning, with perhaps the omission of
In feeding bran or meal, if more than two quarts
given, it is better to give it in two feedings than al
for it is apt to pack and not be thoroughly digeste
large quantity is passed into the stomach: or, b
mix it with cut hay or straw, the same as usua
horses; it will then be directed to the paunch, a
case is sure to be digested, and the full benefit obta

There are many articles that have been underrat
New-England farmer. He puts under his stock a
that had better go into them. He will feed a few c
but don't want many, as it is wasteful to feed t
out cutting them up; and if cut up, the short, stiff
apt to make their mouths sore. And as for chaff a
he declares that they are only fit for bedding; b
sis shows that these articles contain much of valu
erly fed out. They would produce but poor retu
by themselves; but, combined with a few roots an
oil-cake, they will carry cattle through the winter b
many farmers are able to do with the best of hay
have been obliged to use these articles on my own
have consequently seen their value.

The digestive capacity of the various ruminants seems to be about the same; that is, they will extract the same amount of nourishment from a given quantity. But the horse will digest less than any of them. All stock will digest about the same proportion from a large ration as a small one: hence we see that we can crowd our stock to greater efforts than the majority of us are doing. But there is a varying capacity for digestion in the different breeds of cattle and swine, as well as in the individuals of the breed. Illustrations are unnecessary, as all acquainted with stock are familiar with this; but it rarely enters the minds of farmers, that they can increase or ruin the digestion of their cattle by improper and irregular feeding. Much of the success of the dairy depends upon this.

I believe that all farmers should raise their own stock, and should have in view from the beginning, that, whether it is destined for work, beef, or milk, the whole profit of the animal comes from its powers of digestion. To this end the calf should be allowed to suckle its dam until able to eat hay and grain. This is better than teaching them to drink, even though new milk is given them; for the act of suckling promotes the flow of saliva, and the milk is more perfectly digested, the animal is more thrifty, and the foundation for future usefulness is laid.

I have had no experience in steaming food, except upon a very limited and primitive plan; but, judging from all that I can learn, it has not met with the success that was claimed for it a few years ago. It does not increase the digestibility of the food, but softens it, thereby relieving the digestive organs from a portion of the tax placed upon them, and enables the farmer to feed out a great deal of fodder that would otherwise be unpalatable to them.

As a curiosity of winter feeding, I would call your attention to the extensive experiments of Linus W. Miller of Stockton, N.Y., who for a number of years carried a herd of dry cows through the winter on a ration of three quarts of meal each per day: no hay whatsoever was given. Under this treatment the animal loses the large paunch, because of its non-distension. She drinks but little water, and does not chew her cud. He claims that they come out in the spring as well as those cows that have full rations of hay,

drop as fine-looking and healthy calves, assume th
of hay again without inconvenience, and, in fact, t
the best way to treat them.

Too much cannot be said in regard to the regu
feeding. It is one-half the battle. Consider the
that we ourselves would be in, if we ate at any peri
day that was convenient. Our cattle and horses are
creatures of habit as we are; and trespassing upon t
will produce the same results as in ourselves.

The old saying, that too many cooks spoil the
plies to the stable as well as to the kitchen. Th
should always be done by one person, who will so
what each animal will consume; and none will be
over fed. Salt will be administered regularly; they
be uneasy or expectant when others are around; an
thing is wrong with them, you know just where to
blame. Give your cattle good care, and they wi
repay you. Feed regularly, and feed well. Let the
what it may, this applies to all. The wealth of
England farmer to-day lies in his stock and their
and this wealth should be as zealously guarded a
for as any stock that is quoted on the exchange.

The **Chairman**. The subject is now open for di

J. B. **Hadwen** (of Worcester). I fully agree w
has been said by the essayist, as far as I am able
from my own experience. Of course, he has told
things which we have no opportunity of proving b
ence. He has given us a good deal of information in
to the internal organization of the animal; and the
has made in regard to regularity of feeding, I thi
great force. In feeding my own cattle, I consider r
of feeding of the first importance. I am a great
in nutritious food, feeding the best of every thing
known to be good; and it is only by uniform care in
and supplying a uniform quality of food, that the be
can be obtained. It is these conditions that the bre
to maintain, if he expects to improve his strain of c
makes no difference what the breed is: unless they
larly cared for, and kept under the same good co
they will deteriorate.

I will briefly allude to the feeding of calves. It is well known, especially among milkmen, that a calf does not always have the amount of milk that it would best thrive on: it is necessary to substitute something to save the milk. The only substitute that I have ever tried for milk, in such a case, is hay-tea; and hay-tea, to be good, as the doctor has said, must contain a little milk. You can, however, carry a calf along with two quarts of milk a day, if the tea is made of good material. I have done that repeatedly; but I would rather have three quarts, and would be a little better pleased with four. Four quarts of milk a day will carry a calf along in a very fair condition. It is better, however, to let the calf suck for several weeks, as the doctor has told us, that the food may be mixed with the saliva; and the calf will thrive better. But it is frequently the case, especially with the men who are selling milk, the demands of whose customers are imperative, that the calf must be pinched; and in that case it can be carried along in the way I have suggested.

Mr. Slade. Will you tell us how to make hay-tea?

Mr. Hadwen. Hay-tea should be made of the very best hay, — early hay, cut when the grass is in its most succulent condition.

Mr. Slade. Would you take rowen?

Mr. Hadwen. I would rather have the early-cut hay, not so much cured as rowen should be. The simplest way to make the tea is this: Suppose you want to make tea for the calf to-morrow morning. You take the hay to-night, and turn upon it a sufficient quantity of boiling water to extract its nutriment. That should remain in the vessel until the next morning. Then you may warm it, or add warm milk to it, enough to bring it up to the temperature suitable for the calf, which is perhaps a little more than ninety degrees. The tea should be made in the morning for feeding at night, in order to give sufficient time for the water to extract the nutritive qualities of the hay. That is about the whole of it, as far as our practice is concerned; and we have practised feeding hay-tea for a good many years.

I have always noticed that milkmen's calves are not quite as good as some others; that is, they are not show calves. They are never suitable to exhibit for premiums; but when they are one, two, or more years old, they come up as well as any. There is one advantage in moderate feedi early life of a calf, — you do not make that strong, coarse animal that you do when you allow it to h milk that it will take. I would rather run my ri a calf with moderate feeding than to give more t ficient amount of food to make a good and sy animal.

The CHAIRMAN. I would like to ask Mr. Had ever finds any difficulty in allowing his Jersey calv

Mr. HADWEN. As a rule, a Jersey calf does on the milk of its mother: it seems to be too ric calf, and soon the digestive organs are out of cor have found that it is a safer way to wean the ca few days old. I never give my calves new milk a few weeks, and then perhaps it must be diluted It is an unsafe thing, as a rule, to allow a Jersey ca its dam.

The CHAIRMAN. That is, I think, something people do not understand. I have lost some o calves by letting them suck.

Mr. E. F. BOWDITCH (of Framingham). If you me, I will add a little to what Mr. Hadwen has raising a Jersey calf on its mother. If you want it can be done safely by allowing the calf to have o small allowance. I have had occasion to try that of letting them have what they would naturally t or four quarts), if you keep them down to one-ha and then milk out the rest, which is supposed to richer, you will obviate that difficulty. I believe natural way is always the best; and the nearer we to nature, the better.

I always raise my thoroughbred calves on comn and, by having a common cow which is a large mi carry two calves on that cow for four months; a change off, and turn them out, and let them tal themselves.

If you are obliged to feed by hand, the one grea is in getting the right temperature, which should ninety degrees. Farmers, if they try the temper find that they are feeding their milk too cold. Mil feels warm to cold fingers, and you think it is war

Before I tried raising my calves on wet-nurses, my attention was called to four or five valuable calves that were not growing, and were troubled with diarrhœa, which could not be stopped in the ordinary way. I inquired of the man who fed them if he was feeding at the same temperature as usual. He said he was. I found him on his way to feed the calves, and put my fingers into the pail. I said, "You are not feeding at the proper temperature." Although the milk felt quite warm, it proved to be at eighty, instead of ninety-five or ninety-six, as it should have been.

There is one difficulty which you obviate by bringing up your calves on wet-nurses. I suppose we are all troubled in the same way when we bring up on the pail, — that the calves suck each other's tails and ears, and make themselves very disagreeable, and disfigure themselves; and in cold weather, by wetting the calf's ears, you are very likely to have that part frozen, and may lose it, as has happened to me. There is no way of stopping that, that I know of, absolutely; but bringing the calf up on a wet-nurse is a great help. Of course, the reason that a calf sucks is, that the milk has not been properly mixed with the saliva; the calf, being always hungry, drinks very fast, swallows it down, and digestion does not begin properly: the calf is in trouble, and must get hold of something, and try to get the saliva down to meet the milk, instead of having it go down with the milk, as nature intended. A little oil-meal, or, better still, perhaps, a piece of broken oil-cake, put into the calf's mouth as soon as he gets through drinking from the pail, will very often start the saliva, and the calf will amuse itself in that way, and let its companions' ears alone. If you try that a few times, the calf gets fond of the oil-meal, and will go on and feed himself, and you do not have to put it in his mouth.

Mr. PHILBRICK. Have you ever used oatmeal for feeding calves?

Mr. BOWDITCH. Yes, sir: I have always given my calves bruised oats, and I encourage them to eat all they can. I raise my calves on the principle that any thing that is worth doing at all is worth doing as well as you can. If you want to bring your children up well, you give them the most nutritious food you can think of; and the same rule holds good with regard to the raising of calves. I find, that, in raising calves on wet-nurses, they will keep on sucking unti weans them: sometimes it may be ten months, a times it may be eleven months. I have a calf no only three weeks old; and it begins to eat its bru and a little oil-meal besides, — having a very good of milk, — and also begins to eat a few roots, and w little bit of hay.

Mr. Russell. Do you find that the use of a leads to rapid growth and early development?

Mr. Bowditch. Yes, sir. I do not agree with wen, that, if a Jersey calf is allowed to have all th will take from a wet-nurse, it will cause the coar bone that he suggested. I think that comes in t A great many people say they do not want their da to be highly fed, because it will create a tendenc on fat rather than to develop into the wedge shape, supposed to be the shape for a dairy cow. Now, in that I have made with my own cows, in making find that a cow, when she comes into new milk i state of flesh, will give, perhaps, not more milk, cream, and will make more butter, and I think quality of butter, than she will when she comes in ner flesh.

Question. What kind of hay is best for calves winter?

Mr. Bowditch. The nearer you can come to better, — the second crop, or very early-cut first think we are all tending to make our first crop ve equal to rowen. Most farmers, I think, would like haying on the 4th of July, instead of beginning on as we used to. I always try to finish on the 4th.

Dr. Wakefield. We have had the philosoph physiological discussion of this subject. Will Mr. give us the practical, and tell us how we can winte that a cow shall give as much and as good milk as is on grass?

Mr. Bowditch. The first thing is to have th material to do it with.

Mr. Sessions. It seem to me, that, although w agree with what Mr. Bowditch has said about the of raising calves, those of us who live in the cou make butter for a living, cannot afford wet-nursing: it costs too much. I would like to ask him if he has had any experience in feeding calves on skim-milk.

Mr. BOWDITCH. If you are short of pasture and short of fodder, of course you cannot use a wet-nurse; but, if you have plenty of pasture or fodder to feed a wet-nurse cow, I think you can raise a calf as cheaply, in dollars and cents, on a wet-nurse, — without taking into account the fact that your calf will be much better at a year old, — as you can do it by skim-milk.

Mr. SESSIONS. If you raise two calves on one cow, it will make the calves cost thirty dollars apiece at six months old; and they are not worth more than fifteen dollars in the market when they are a year old.

Mr. BOWDITCH. I feed my wet-nurse cows in winter on the poorest fodder I have, sometimes a pinch of grain, but very little.

Mr. SESSIONS. You don't approve, I take it, of feeding skim-milk at all to calves?

Mr. BOWDITCH. It has been done. I raise a good many calves on skim-milk.

Mr. SESSIONS. I want to get at something that is practicable for poor people, — for farmers who have not a great deal of capital.

Mr. BOWDITCH. The skim-milk should be, in the first place, perfectly sweet, and it should be fed with great regularity, — not too much, as it will be likely to distend the stomach; and, taking it as quickly as they do, they are uncomfortable, which leads them to suck each other's ears. One important point is, to be sure to get the temperature right. In New Hampshire and other parts of the country, where they raise oxen and premium steers, they can afford to put their calves on wet-nurses. They find that it pays them very well to do it.

Mr. SLADE. In feeding calves on skim-milk, would you put in any cotton-seed meal?

Mr. BOWDITCH. I have put in oatmeal and linseed-meal. If the meal is put in properly, it does very well. Mr Thorne of Thorndale, the well-known shorthorn breeder, feeds linseed-meal to his calves. It is mixed with the milk, and does very well. If you feed new milk for ten days or a fortnight, and then feed skim-milk, the calf's sto begin to digest dry grain. I think it is much bett it dry, because they use their saliva, and it help digest the food better.

QUESTION. Would you give spring calves me winter?

Mr. BOWDITCH. I think that we err more in gi too little than we do in giving them too much. I for one calf that is over-fed there are hundreds th get enough.

QUESTION. How much meal is good for a calf?

Mr. BOWDITCH. If calves are well fed, I think not inclined to over-eat. In my calves' pens always find a little food left that they do not care feed a mixture of bruised oats and oil-meal; an would eat a little corn-meal with it, I would let t it. But I think if you gave a calf all it would eat not eat a pint a day, if it had plenty of other thing

QUESTION. Would not a calf that was dro spring eat more than that?

Mr. BOWDITCH. Yes, sir. A calf that was eig old would eat more than that; but I do not think corn-meal would hurt a calf of that age, or a li possibly.

QUESTION. Many of our people feed large a shorts and fine feed: would that be any better for a Indian meal?

Mr. BOWDITCH. I think it would be. I think of the two would be better still. But I have ofte of what my friend Mr. Thorne said of linseed-meal was not only the best food, but it was the best me have never known an animal of any age to be hu seed-meal in any quantity that it would eat.

QUESTION. If a calf is brought up on a cow t of three or four months, is there not danger of re-ac the calf is taken from the cow, and put on other fo

Mr. BOWDITCH. They will begin to eat when a wet-nurse by their side all the time quicker than if they are left alone. I did not mean to be under I take a calf off at three or four months old. W two calves on a new milch cow, she will give en for both for three months; and then I take one calf off and put it on another cow, and let the other calf have all the milk that the wet-nurse will give.

QUESTION. At what age would you wean a calf?

Mr. BOWDITCH. If I had the milk to spare, I would keep him on a wet-nurse as long as he wanted it. I had a pet bull-calf that had his belly full of skim-milk until he was thirteen or fourteen months old, and it seemed to do him good.

Mr. SESSIONS. New milk would seem to be the best thing that we can find to raise a calf on; but the question is, Can we afford to give it to him? It is well known that the majority of the calves of Massachusetts are ordinary cattle, that, at the age of a year, can be bought in the market for fifteen dollars. You can buy a thousand of yearling heifers at that price; and of course, the cattle of Massachusetts, as a whole, are made up of such stock. They are not thoroughbreds. You may say they ought to be worth more; but will any man say that people who farm for a living can raise calves on new milk, and sell them at that price and make a living? The men who make butter must have the cream from their milk to buy their wheat-flour, to buy their wives and daughters clothing; and they cannot afford to give their calves new milk. They would cost more at five or six months old than they would bring when they came in as cows.

Mr. BOWDITCH. What do you consider the value of sweet skim-milk for feeding purposes, — for pigs, for instance?

Mr. SESSIONS. I am not able to say. We use it for the production of calves to the best of our ability. I have never made an estimate of its value. We have no other way of using it, only to feed it out.

Mr. TAFT. Mr. Sessions lives up in the hills, ten miles from Springfield, in Hampden County.

Mr. SLADE. I presume no one knows better than Mr. Bowditch what skim-milk is worth; but the only way to get at that sort of thing is to put it down in dollars and cents.

Mr. BOWDITCH. I will take it at a cent a quart. How many months would you give your calf skim-milk?

Mr. SESSIONS. Just as long as I have the milk to spare.

Mr. BOWDITCH. You would feed it eight months, wouldn't you?

Mr. Sessions. If I had it to spare.

Mr. Bowditch. And you feed between eigh quarts a day?

Mr. Sessions. Yes, sir.

Mr. Bowditch. Eight months would be two hu forty days; and, estimating the quantity fed at te day, it would make twenty-four hundred quarts milk, which, at one cent a quart, amounts to t dollars.

Mr. Sessions. That figures up very nicely. go up into Canada, and look at a white-pine tree, will make so many thousand shingles, which will b certain price; but if there is no market for th when you get them, they are not worth any thin milk is not worth a cent a quart with us: we can for any thing.

Mr. Bowditch. If you cannot sell it, you can pigs, and make it worth more than a cent a quart.

Mr. Sessions. I don't know but I can, but I doubt about that. What I want to get at is, if th something that can be added to skim-milk that wi nearly as good as new milk, so that farmers who a to take the cream to make butter can use it to go tage.

Mr. Bowditch. As I say, linseed-meal is the b know of. Feed your skim-milk at the proper te (ninety-seven or ninety-eight degrees by the ther and make your calf eat it as slowly as you can, an be sure to have a very satisfactory calf.

I agree with what the doctor said about feeding particular, except that he suggested giving one fee fodder before he began milking in the morning. the habit of milking himself, I think he will finc uncomfortable. The cow will stretch around thi that, and step forward and step back, and make tion of milking a difficult one. I think in a state a cow does not feed much before light. If you t cow in summer or in fall feed, so that she can fill No. 1 stomach, she will do it; and then she will lie keep perfectly quiet for six or eight hours at least has chewed that all over; and so, in feeding in following that principle, I would feed nothing but the very best early-cut hay and rowen, — different kinds of hay, so as to tempt their appetite. If you have any particular kind of hay in the barn that they like less than another, feed that first. Feed in that way, a little at a time, so as to keep their appetites sharp. Keep them busily eating all the time, and, when you get through with the different qualities of hay, feed your roots, and then your meal; or, for convenience' sake (which seems to answer the same purpose equally well), feed your meal on top of the roots.

Dr. Wakefield. If you were feeding to get the most milk, what grain would you feed? and when and how would you feed it?

Mr. Bowditch. I have always been a butter-maker: therefore I have never fed to get any great quantity of milk, although some of my cows will give over twenty quarts of milk a day. But my feed for making butter is no grain at all, except corn-meal. I have found, that, if I fed any other grain, my butter-merchant would tell me that I had been feeding something that was undesirable. I have had him reduce it to so fine a point, that, when one cow out of twenty was having five or six quarts of shorts a day, he informed me that I was feeding something I had better not continue.

Dr. Wakefied. Wouldn't you feed something else, if you were feeding to get the largest quantity of milk, to say nothing about making butter?

Mr. Bowditch. Yes, sir. I should feed shorts; but I don't pretend to know much about making milk.

Dr. Wakefield. Will you tell us about making butter?

Mr. Bowditch. Feeding for butter, I would feed from half a bushel to a bushel of carrots a day, if I had them. That is the only root you can feed that quantity of without giving a bad taste to the butter. My feed now is about six quarts of mangolds, with ten or twelve quarts of carrots, besides four quarts of corn-meal, fed twice a day, in two rations, as the doctor suggests.

Dr. Wakefield. That comes nearer your idea of grass than any thing else?

Mr. Bowditch. My cows make me better butter in winter on that feed than any other feed I have ever tried; and my butter, although perhaps not quite up to grass butter, has a very good flavor.

QUESTION. Have you ever tried parsnips?

Mr. BOWDITCH. Yes, sir.

QUESTION. Do they impart any peculiar flavor?

Mr. BOWDITCH. If fed in any large quantity, but they do not help the color of butter at all. Th perhaps, of so much importance, now that we have good coloring-matters as formerly; but if you do n use any coloring-matter, if you have any pride ab you want to feed your cows something that will gi color to the butter without any extract.

Mr. SLADE. Do I understand you to say, that, cow in twenty ate shorts, the result was detect butter?

Mr. BOWDITCH. Yes, sir.

Mr. SLADE. Without the use of a microscope?

Mr. BOWDITCH. I don't know what he had, b formed me of that. I like to feed certain cows in oil-meal. I can feed oil-meal to one cow without hi it out, but he will find it out if I feed it to two or cheat him as far as I can in that way without chea self.

QUESTION. Does he find any difference between process linseed-meal and the old oil-meal which w get? The consignee in Boston told me that the ne meal was either soaked in benzine or naphtha for th of getting the oil out of it; and it does get it ou there any difference between that and the old oil-m

Mr. BOWDITCH. There is so much difference tha not think of feeding the new-process meal.

QUESTION. Can you get the old?

Mr. BOWDITCH. Yes, sir.

Dr. WAKEFIELD. Do you, or do you not, find t is a difference in the milk or cream or butter that duce in the winter by this food? Does, or does no quantity of milk give a greater quantity of butte does in the summer?

Mr. BOWDITCH. I think there is very little va that. One reason that would make you think so i summer a majority of your cows might be new m in the winter, perhaps not farther along from calv would not give as much milk, but it would be v richer. I think that would be the difference. I have tested the same cow, that was a large milker and a large butter-maker; and I found very little difference, whether she was new milch in July or new milch in January, either in the quantity of milk or in the quantity of butter.

QUESTION. Have you had any occasion to use cotton-seed meal? and what are its relative merits compared with corn-meal?

Mr. BOWDITCH. I cannot feed cotton-seed meal and make the best butter. I only tried it in a very small way, and I was stopped at once by the same butter-taster to whom I have referred. I have fed a small quantity of cotton-seed meal to some steers in winter. I was afraid to feed much of it: it was very highly concentrated. I believe a little of it can be fed very advantageously, but I have had no experience with it.

The CHAIRMAN. I would like to hear from Mr. Hadwen how he keeps up the winter flow of milk.

Mr. HADWEN. I make milk for market, and it is the most important product of my farm. I have had a long experience, not only with the grade and native stock, but also with thoroughbreds. The best thing to make milk of is grass, if it is good and enough of it. When you bring your cattle in from grass in the autumn, — the time between hay and grass, — the best thing that I have ever tried, in connection with a little Indian meal or ground oats, is cabbage. But some farmers say, "Why! you can't afford to feed cabbage." I want to say to farmers that they cannot raise an acre of any product on their farm which will give them as much milk between hay and grass as an acre of cabbage. I have tried it for years, and I have come to that conclusion. From the middle of November to the first of January a good amount of cabbage fed every day to a cow will not only keep up and increase the flow of milk, but will add weight to the animal to a very remarkable extent. It builds on to the animal. As the Irish term it, it is a strong food.

Mr. RUSSELL. Don't it make the milk strong?

Mr. HADWEN. It does make the milk strong, but not in flavor. But in feeding it to cattle you must use a great deal of care. Cabbage must not be fed at haphazard. The rotten leaves of cabbage must not be fed; but the clean

heads, such as you would eat yourselves, fed at th
time, impart no flavor to the milk that any man o
can detect. I am not going to say that cabbage
under some conditions, flavor butter; but I say tha
not flavor milk so that it can be detected.

The time to feed cabbage is immediately after
and every leaf that is not consumed at the time of
must be swept out of the way, and they must not be
a leaf between meals. People who feed it in this
find no inconvenience whatever from the cabbage-
the milk.

Now, in connection with cabbage and good hay
hay is the best food, — I feed meal made of ground
do not want to feed any shorts whatever. Shorts
crease the quantity of milk; but I do not make
quantity, I make it for quality. Quality is what I
come up to every time, and that is my process of
between hay and grass.

After my cabbages are gone, then I come on to
hay: I feed also meal and carrots. There is no root
make milk of such consistency, flavor, and color, as
carrot. For one who is making butter, or one who is
milk for market, and must make the best quality,
the carrot as indispensable. It is the cheapest root
grow for cattle. I formerly fed the mangolds; then
mangolds and carrots together, and fed them; and n
carrots alone. You must be very careful that your
carrots lasts until your cows go to grass; for, just a
you cease feeding them before that time, your custom
ask you what is the matter with your milk.

These things have grown out of a long practica
ence; and of course a milkman who has supplied
customers for more than a quarter of a century find
little weak points that he has to contend with, and
himself accordingly.

Mr. A. W. CHEEVER (of Sheldonville). I woul
ask Dr. Bowen a question. Mr. Hadwen states that
ing cabbage, the best green feed of any after grass, it
fed after milking, and then every leaf swept away w
cows will not get at it again before another regu
We were told by the essayist, Dr. Bowen, that

which cows take remains in the first stomach at least twelve or fourteen hours. I wish to ask the doctor if he can explain the philosophy of that fact which Mr. Hadwen presented. Can cabbage remain in the stomach of a cow fourteen hours before digestion commences, without imparting a taste to the milk, provided it does impart a taste if eaten immediately before milking, or at any time except just after milking?

Dr. **Bowen**. My idea is, that it would impart some flavor to the milk, fed at almost any time; but it may not be perceptible in all cases. There is a difference in cows in this respect. Some cows will not impart the flavor of turnips, even, to their milk. Those cows are very rare, I admit; but there are those that I think would impart but very little flavor. A feed of cabbage would go to the paunch, where all rough food goes. It would remain there twelve, thirteen, or fourteen hours. It is brought up by the peristaltic action of the coating of the stomach to the second, and brought to the mouth; and then it is carried back again to the third stomach, and the fourth. I do not think the time of feeding cabbage makes much difference, excepting in this way: if it is fed immediately after milking, it goes into the paunch; and when the cow commences to chew her cud, the previous feeding is brought up, not the last one; digestion commences immediately; and the milk is not secreted as abundantly directly after milking as it is a few hours afterwards.

Mr. **Cheever**. The paunch is to be filled with cabbage all the time?

Dr. **Bowen**. Yes, sir; but the absorption does not come from the food while it is in the paunch: the absorption comes from the food when it has passed from the fourth stomach into the intestine.

Mr. **Cheever**. I can see an explanation there, if it is only fed once a day. I supposed it was fed twice a day.

Dr. **Bowen**. I suppose it would make no difference whether it were fed once a day or twice a day. The idea is, that the absorption of the cabbage shall go on before the milk is secreted.

Mr. **Whitaker**. Is not that which gives the peculiar cabbage-flavor a gas which is continually escaping from it?

Dr. **Bowen**. Yes, sir.

Mr. **Whitaker**. Does that gas stop before it has permeated the whole tissue of the animal? I have tast very strong in beefsteak after the cow had been f nips. I have also tasted linseed-meal. Why not bage in the same way, if the gas permeates every animal?

Dr. BOWEN. I think you can. The gas will p the muscular tissues. But there is a constant esc gas from the system, which is carried off in the br

Mr. WHITAKER. Did you ever get sweet m cow whose breath was not sweet? that is, if you cover any disagreeable smell about the cow's breat

Dr. BOWEN. I think not. I think it will taint I think milk is the most susceptible of taint of any whether it is in the cow or out of the cow.

Mr. SHAW. Would it make any difference w cow was fed on cabbage before milking, or not?

Dr. BOWEN. If fed immediately before, I do it would.

Mr. SHAW. Say within an hour previous?

Dr. BOWEN. If she commenced to chew her cud bring up a portion of the cabbage; but, as a gener will not come up until it is softened.

Mr. WHITAKER. Dr. Wakefield asked a ques what food would make the most milk. I believ without reference to quality. I will tell him wh would do it: a bushel of brewer's grain, all the sa cow would eat, and all the water she would drink

Mr. HADWEN. I do not raise cabbage to sell. I sell a few, when prices are high; but I have no he advising every farmer who is making milk to raise bage he may want to feed from the middle of N the first of January.

In relation to feeding, it is safer to feed cabbag ately after milking than to feed it before. Some call you away from milking a cow; or, if you ha number of cows, it takes a little longer to go th process than you are aware of; and, as far as my ow tion has gone, any thing that has flavor goes immed the circulation. My father tells of an incident w under his own observation, where a steer that driven to the slaughter-house passed through an and caught up an onion, and ate it. The animal was slaughtered within a short time; and the flavor of the onion went into the circulation, and flavored the beef so that it could not be used. Now, if that steer had remained alive a sufficient length of time for the gases to have had an opportunity to pass from the body, then that meat would have been good. I think it is just so with the feeding of cabbage. I think the system is at first impregnated with the gases, or the flavor of the cabbage, when the milk has been withdrawn from the animal; and I think that the gases have an opportunity to escape before the milk is secreted in large quantities, and consequently it is not flavored with the cabbage, as it would be if it had been fed between the milkings.

Mr. PETERSON (of Marshfield). I do not wish to prolong this discussion, as it is quite late; but my personal experience confirms Mr. Hadwen's. Once in my life I had two thousand heads of cabbage on hand that were worth only three dollars a hundred. I had a sale for all my milk; and the question arose, when I put them into my cellar, whether I could not feed my cabbage to my cows, and get my pay for them in milk. I did so, and there was no complaint made all through the winter; and I never had such cream, even in summer time, as I had when I fed those cabbages. The cows had all they wanted to eat; and for four weeks — I take care of my own cows: I don't allow anybody else, except when I go to a meeting of the State Board, to take care of them — for four weeks they did not drink a drop of water, and saved me all that trouble. They got all the water they wanted out of the cabbages. When my cabbages were gone, I had a quantity of turnips; and I undertook to get along a little while with them, but I had to stop it very soon. They imparted a disagreeable flavor to my milk, and my customers would not use it. Besides that, my cows lost as fast as they gained when I commenced on cabbages.

QUESTION. Did you feed both your cabbages and turnips just after milking?

Mr. PETERSON. I did, sir; and still the turnips tainted the milk.

Dr. BOWEN. I am very glad to hear that point of feeding cabbage treated by practical men. Theoretically, I think the remarks of Mr. Hadwen are correct; for it is a fact that

best pork that is made in the State. Their practi
their hogs twice a day. They have the impressio
will fill himself in the morning, and lie down th
day, and digest his food. I beg to ask Dr. Bov
that impression is correct, or whether he mainta
statement was correct, that we should feed th
times a day in fattening hogs?

Dr. Bowen. That is just as you look at the
whether you are trying to get the most nourishn
the feed, or whether you are trying to make the
You can feed a hog enough of nutritious materi
set him digesting. If you give him a heavy feed
deal of the food passes through him undigested.
taltic movement, the natural contraction of the s
the internal action of the pig, are very good. If
is distended with a heavy feeding, the greater
food passes out undigested. I think those far
Connecticut Valley who divide the same amou
that others give in two rations into four, will
result from it, — that they will get more pork
think the digestion will be more complete.

Mr. Sessions. This idea of tainting milk an
feeding cabbage and turnips I have heard discus
deal in institutes and farmers' clubs in the
Valley, where I live; and a theory has come to
there, in accordance with the fact stated here by
and others, that no taint is imparted to the mil
material is fed immediately after milking. Th
this (contrary to what the doctor has given us in
— that this material goes to the first stomach, a
nated then for hours, and the change which it
through liberates the gas, and it leaves the sys
there is much milk secreted. The doctor says th
remains in the first stomach twelve, fourteen
hours; and that contradicts this theory. Our
accordance with the facts; the theory which
gives us would seem to be counter to the facts
been ascertained by experiment. One of our far
Connecticut Valley, who makes milk for market,
cows, has sometimes sown oats and turnips toge
turnip-tops grow up almost as high as the oats:

them together, and feeds them to his cows in the summer. It is generally considered that turnip-tops are a great deal more likely to taint milk than turnips; but he feeds this green food to his cows, being careful to feed immediately after milking, and does not hear the slightest complaint.

Another of our townsmen, who has the confidence of the whole community, Mr. McIntire of Chicopee, has told me that a man could feed a cow all the round turnips she would eat, after milking, and he would guarantee there would be no taint in the milk. He sells milk, but has, when his milk has been very plenty, made butter; and I questioned him about that, because I make butter. He said he had never had the slightest complaint about his butter. I do not vouch for these facts: I only state them as I find them. The theory we adopted was, that the material was ruminated before a great secretion of the milk. The doctor's ideas were different.

Dr. **Wakefield.** It seems to me there is one thing to be noted about this turnip business. If you gather the turnip-tops from the ground before they have time to wilt, and feed them immediately, they will not affect the milk nearly so much as they will when wilted. When I was a boy, I used to go barefoot; and when I was pulling turnips in the field, we would cut the tops off, and leave them in piles; and, if I wanted to warm my feet, I would go and stand on one of those piles. I believe there is something in that. I know if you feed turnip-tops that have become heated you cannot get out of the barn before you will taste the odor in the milk, or smell it. In the case to which the last speaker referred, the turnip-tops were cut with the oats, and carried immediately into the barn, and consumed; whereas, if you gather your turnips, and cut off the tops, and let them lie in piles and heat, then you get the taste, and you get the smell. I believe there is something in that. I have not experimented in that direction, so that I know certain, as I do about some other things; but it looks reasonable to me that there should be a difference.

Recess until two o'clock.

AFTERNOON SESSION.

Mr. **Lane** in the chair.

On calling the meeting to order in the afternoon,
man introduced his Excellency Gov. **Long**, pr
officio, of the Board, who congratulated the Boar
people of Bridgewater on the success of the meeti

The **Chairman**. It has been suggested to m
Governor recommend the establishment of an e
station at Amherst College.

Gov. **Long**. I cordially concur in that. I rec
something of the kind last year. I believe an e
station would be very valuable in connection wi
ture, just exactly as the United States has, in
with fish-culture, a valuable experimental station.

The Chairman then put the question to the
whether they would request his Excellency to re
in his message to the Legislature, the establishm
experiment station at Amherst College; and th
unanimous vote in the affirmative.

The **Chairman**. The first lecture this afterno
upon "Fruit-Growing," by Mr. **Avery P. Slad**
erset.

FRUIT-GROWING.

BY MR. AVERY P. SLADE.

The subject of fruit-culture has been so often
by this Board, that its introduction at this tim
regarded by some inappropriate.

But to those who are engaged in the business (
many around me who are) it is always interesti
limited time allotted for this discussion will not all
go into the minutiæ of growing fruit, even were I
to do so. I therefore propose to speak of the s
and the apple briefly; confining my remarks pri
some of the obstacles which lie in the way of the
ful cultivation, and to suggest such remedies as e
assures us are the most effectual.

Prior to 1863 the cultivation of the strawberry in Bristol County was confined chiefly to horticulturists, — was not regarded as a commercial fruit, but as a luxury too expensive for general use.

Boston received its supply mostly from its adjacent towns and those of Middlesex County.

Hovey's and Cutler's seedlings were the leading varieties cultivated in those early days, possessing all the good qualities supposed to be needed in a strawberry.

The business at that time was looked upon by the average farmer as one of the fine arts; and its successful cultivation was thought to depend upon some secret knowledge, of which a fortunate few possessed the sole monopoly.

In 1863 the people of Dighton and Somerset ventured into the business on a small scale, using the above-named varieties with the Brighton Pine and a variety called the "Old Virginia." Finding the soil well suited to their growth, and the business somewhat profitable, it was gradually extended to the year 1866, when, by the completion of the Dighton and Somerset Railroad, Boston market was thrown open to their products. A new impetus was given to the enterprise, and the acreage was rapidly extended; and at the present time it would not be easy to find a farm, however large or small, in the eastern part of Bristol County, that does not have its strawberry-patch, say, from a quarter-acre to four or five acres in size.

It was soon discovered that a firm, hard berry was required, — one that would not only stand transportation to Boston, but that would stand reshipment after its arrival.

To satisfy this demand, the Wilson strawberry was chosen; it being very firm, hardy, and exceedingly productive. Though abundantly acid, and somewhat deficient in flavor, for fifteen years it was the berry of the million. Attempts have been frequently made to displace it by new varieties claiming to be its superior in all desirable qualities, but which, on trial, have signally failed; and cultivators have clung to it with the tenacity they would to an old friend. Within the last two or three years its peculiar behavior has been such as to force the conviction upon its numerous friends that it must be abandoned; and they are compelled to make choice of another possessing all its essential good qualities, without any of its vices.

The necessity of this change has had a tendenc duce, in some measure, a stagnation in the strawbe ing. Good judges estimated that only about two the acreage of 1879 and 1880 will be in bearing in

Growers are experimenting cautiously with new to which their attention is constantly being called continue to do so until something is found that the bill," when the business will be resumed, and exceed its former proportions.

The strawberry is an uncertain crop, and by an easy one to raise, the frequent assertion of horticulture to the contrary notwithstanding. Ne ments yearly present themselves; and every succee demands greater effort to insure success than was the year preceding. Though I think this may be of almost any crop, yet I think it is peculiarly strawberry-crop.

The ravages of the cutworm, or the disheartenin ance of the blight, are either often sufficient to d the most resolute cultivator. The former we hav in a measure to out-general, but of the latter we k lutely nothing except its results. A field may b to-day, to all external appearances, and to-morro takable signs of waning vitality are stamped on e The foliage quickly and mysteriously disappears, le half-grown, sickly-looking berry exposed to the ra scorching sun, emphatically saying to the hus "Thus far, but no farther, shalt thou go." The ca blight is merely a matter of speculation. Althoug are not wanting to account for it, yet none have vanced that appear to stand the test of experienc been attributed to various causes; such as, too mu little plant-food in the soil, the broadcast applicati much fertilizer, or the working of a minute inse roots. Some look for the cause in climatic influen others think that they account for it by saying plant has played out.

This phenomenon, though not confined to any variety, has developed itself most frequently on th and has been one of the chief causes which has bro plant into disrepute.

Another formidable enemy in the field, and one which makes it unsafe to calculate the profits of next year's crop by the number of plants set this year, is the cutworm. I will not describe him. Let the fortunate few who have never been forced to make his acquaintance remain in blissful ignorance. He does his work thoroughly. Commencing operations about the 10th of July, he continues till prevented by frost. His mission appears to be to cut the plant about one inch below the surface, separating the root from the top. Having destroyed one plant, he works a subterranean passage to the next nearest, and then repeats the operation. Although there is a great deal of monotony in his life, he never seems to tire. He is, however, entitled to the credit of one virtue, — he never eats the new root of the tender runner so long as he can get the more substantial food of the main plant.

Cultivators have been assiduous in their endeavors to devise some means of preventing the ravages of this destructive insect. It was thought, that, by ploughing the ground late in the fall, and exposing him to severe frost, it would certainly insure his destruction. Others have coated their land with salt, and ploughed it in, thinking, perhaps, to so season his food, that he would die of starvation. These efforts have failed. The practice more generally pursued is to go over the field daily, and, where the wilted leaf indicates his presence, dig him out, and kill him.

This practice, though suggestive of locking the door after the horse is stolen, surely prevents further depredations. The theory that he travels from one plant to another by an underground passage is by no means universally admitted, and is often met by the question, How does he know which way to go? and might he not travel a week without finding a plant? I would here say that unerring instinct is the surest guide.

To test the truth of this theory, I took from the ground a grub that had just completed the destruction of a plant, and tied a piece of red thread around his body, and replaced him where he was found, and covered him with earth. In thirty-six hours after, the nearest neighboring plant, which stood sixteen inches distant, was struck with death; and on examination I found the same grub at work, exhibiting clearly the mark of his identity. In spite of all the untiring efforts made for his destruction, hundreds of acres a destroyed by this destructive agent.

I have one or two suggestions to make which h ing on this very important subject, — First, neve berry-plants on land which has not been in cu least two years from the sod; and the second is, as to induce or force your plants to throw out erally before the cutworm commences operations. this important result, prepare your ground in the liberally, set your plants early, and cultivate tho mean by setting early, as soon as the frost is out o in the spring; and you can run a cultivator over put in your plants, and, if you should have a relation to the final result, drop a teaspoonful guano or some high-grade fertilizer within about of the plant just before hoeing.

Small strawberry-plants are preferable to large will take hold sooner after setting. They will se ners earlier, and more of them, than large plant taking advantage of the one virtue which we c grub, it is possible to produce a fair amount of fol many of the old plants be missing.

One of the most powerful agents operating to the small-fruit grower in Massachusetts is the se tition which he is compelled to meet in foreign f ments from the South commence early in the advance North as the season advances, supplying with such quantities, at low prices, that the c comes indifferent, if not cloyed, by the time the is ripe.

Virginia, Maryland, New Jersey, and Long once supposed to be separated from us by a amount of intervening space; but rapid transi distance, and they now enter the market with morning: in fact, better than that; for the ber Jersey and Long Island, picked in the afterno the next morning in Boston market before the Somerset berries arrive. If their shipments when ours commence, it would, to some extent, evil. Our berries, on entering the market, find plied, and prices down to hard-pan, and, althou "natives," fail to secure but a slight advance. I have sometimes thought, that, when we were enjoined to "resist not evil," this particular evil was not contemplated. How to successfully meet this competition has been the subject of much thought and serious consideration.

The only way which seems left for us to pursue, and which commends itself to the good judgment of practical men, is to grow a berry of superior excellence, both in quality and appearance, and present it to the consumer in a better condition, in clean inviting packages, using cheap new baskets, not returnable, and by a systematic effort elevate the standard, as well as raise the price, of native fruit, cause it to be sold on its merits, and establish a reputation.

Commission merchants have a way of selling strawberries that is somewhat discouraging to the grower, who is careful in sorting and packing, and who fills his baskets in such a way that they will be full when offered for sale. A teamster drives up to the curbstone with twenty-five or thirty crates on his wagon. A buyer mounts the wagon, and throws open a crate, which is taken as a sample for the whole; and from this sample, after making all due allowances for deaconing, the load is sold. It is fair to presume that in this load are a half-dozen different grades of berries from as many different shippers. The glaring injustice of this operation is too apparent to be overlooked.

The question is often asked, Would you advise going into the business? I answer, No: at least, not extensively. The strawberry is not only a perishable, but an exacting fruit. That which ripens to-day must be consumed to-morrow; and it will stand less neglect than most any other crop, while there are other crops, which, with less outlay and labor, are more easily grown, and at the present time quite as remunerative, as the strawberry-crop.

I regard the apple as the most important fruit grown in New England, and I think I may safely say that it is of more importance than all others. Whether it be viewed in the light of a wholesome food, or as a profitable market crop, its value is too often underrated.

The soil and climate of New England are better adapted to its production than they are for the peach, grape, or pear; and, with proper cultivation, there is no good reason why we

should not export millions of barrels annually, i
a million and a quarter, as we did in 1880.

The objection to setting apple-trees which is of
in this fast age — that " we must wait so long for the
is unworthy of the patient husbandman, and is rea
much account when compared with the salutary
discipline which we are taught in learning to wai
we plant a tree to-day, and pluck the fruit to-mo
very important lesson in life would be lost. We n
to wait.

By fruit-cultivation I wish to be understood as
all that is implied by the use of it taken in its
broadest sense. I mean by it, intelligent, thoroug
The idea of ploughing a piece of land, and stickin
trees, and then putting up the bars and leaving the
the expectation of ever getting any decent fruit,
preposterous. Some twenty years ago an elderly
who lived in my neighborhood suddenly became
that he ought to do something for posterity, as he
and, as he found an orchard on the farm when it
his possession, it was no more than right that
leave one when he gave it up. While he was still s
this laudable determination, the tree-peddler (a
whom we all delight to welcome) put in his appear
sold him trees for which he paid him twenty dolla
were forthwith set out in a piece of sward-land;
sod was removed with a shovel, and the roots we
the hole, and the sod, I think, replaced in an inv
tion. He boasted of having set an orchard, and un
felt that his duty to posterity had been discharge
trees received no subsequent culture, and some
showed signs of life ten years after setting; but th
them had been honeycombed by the borer, and we
off close to the ground before they had attained
seven years.

I am willing to admit that the average New
orchard is not a thing of beauty, and does not im
landscape: they are evidently left to take care of th
Once in two years they are allowed to produce
quantities of inferior apples, only a small portion
are fit for use. They are forced on the market be

will not keep; and, although sold for all they are worth, the prices received will scarcely pay for picking and marketing: hence the growing prejudice against growing apples. Were I a young man commencing a farmer's life, I would sooner embark my fortune in an apple-orchard than any other fruit we grow in Massachusetts. If we would succeed in any undertaking, we should first avail ourselves of all the knowledge appertaining thereto, and then make a faithful and careful application of the same to attain the desired end.

The production of nice fruit is an enterprise worthy of our best endeavors. A prominent agriculturist, in speaking upon this subject, says that the matter of fruit-growing is a matter of horticulture, which I understand to mean agriculture on a small scale. Now, what can be done on a small scale, can, with extended means, be done on a large scale.

Let it be distinctly understood that I advise no one to set an apple-orchard without a determination to do thoroughly all that is required for the protection of the fruit. Every thing is important, — the location, the preparation of the soil, the selection of varieties, the quality of the stock, the manner of setting, and subsequent cultivation.

The destruction of the borer, the caterpillar, cankerworm, and coreworm, must not be neglected. The pruning of the tree; the kind and quantity of manure to be used; the process of thinning the fruit, and of picking, handling, and storing; the construction of the fruit-cellar, and its management; and lastly the final preparation and packing of the fruit for market, — these are some of the cardinal points to be observed to insure success.

There are those who regard shelter of great importance in locating an orchard. I think, perhaps, it may be well to secure it, where it is convenient to do so; but a young tree planted in a bleak situation, and accustomed to a wholesale breeze, protects itself by extending its roots farther and deeper than it otherwise would, were it not racked by the wind. The Island of Rhode Island is completely exposed to the raking winds of the Atlantic, and of Mount Hope and Narragansett bays, and yet she can justly boast of some of the best orchards in New England.

SOIL.

In selecting the soil, choose a clayey loam; and, inclined to stand on any part of the surface, it underdrained, but not otherwise. It should be ric eral manures, and it should never be allowed t exhausted.

VARIETIES.

In making choice of varieties, one should be go some extent, by the market he intends to supply; cases it is safe to set liberally of the best wint apples. I am told that in foreign markets the c apple has much to do with selling it, and that in favor of bright red. Having decided on the va to a nursery, and select from the rows the very mens, even if you must pay for the privilege. We quality by comparison; and, where objects stand si we are enabled to choose the best without hesitatio like animals, are constitutionally strong or weak: constant petting and nursing may prolong their but will never atone for their inherent weakness.

Effectual methods of checkmating the canker borer are too familiar to need a repetition; but the or coddling-moth, is not so easily controlled. I r as decidedly the most formidable enemy which grower has to contend with. We are told that lineal descendant of a miller, who about the last and in the night-time, flies among the trees, an eggs in the calyx of the apple. In a few days hatch, and the young worms burrow in the apple, e way to the core. In about twenty-five days th their full growth; and, having subsisted on the he apple, it drops to the ground. They then leave and secrete themselves under the bark of the tre where; and in due time another generation is se its destructive mission.

Many remedies have been devised to destroy Stocking the orchards with fowls has in many been followed with complete success. Where t practicable, scrape the trunks of the trees the las and then wash with a solution of potash or whale-oil soap. Pick up and destroy all wormy apples, and you will find that you have done much to check their propagation. Allow me to quote from an eminent writer on this very point. He says, "Perhaps the best remedy for this and many other little pests is the scriptural one, 'Dig about the tree, and dung it.'" That is, give it greater vigor of growth; make it more productive, so that a portion of the fruit will come to maturity in spite of all insects. It is a well-known fact, that the most vigorous-growing, thrifty trees correspond with thrifty farmers, — the more they have, the more they gain. Insects mostly attack the most neglected trees.

As bearing upon this subject, I cannot refrain from expressing what has been the result of long years of close observation. When the ears of corn do not fill out, and the grape-seed does not catch, we attribute it to the dry weather. When the hay-crop is light, we say that the grass-roots were winter-killed. When the potatoes are small, we attribute it to having planted small ones; and sometimes strawberry-plants do not freely throw out runners, and we lay it to the peculiarity of the season. Now, in all these cases I have noticed that these results are most likely to occur where manure is used the most sparingly. There is nothing that will make the grass look so green to the farmer, or that will cause him to see so much blue sky every day in the year, as liberal manuring. In fact, manure is the grand panacea for a large majority of the ills which vegetable life is heir to. Manuring fruit-trees is absolutely essential to success; and yet how rarely do we hear the inquiry for the best manure for an orchard. The apple-tree is a gross feeder, and takes from the soil large quantities of manurial substances, which must surely be restored to keep the trees in profitable bearing. Nitrogenous manures should not be applied to trees bearing fruit, as they induce a vigorous growth of wood and but little fruit.

A popular objection to planting apple-trees is, that they never bear when apples are scarce, and bear abundantly when they are plenty. The tendency to bear enormous crops the even year, and omitting to bear the odd year, thus inaugurating alternately a feast and a famine, has ever been a perplexing and discouraging characteristic of the apple-

tree ever since William Blackstone planted his
Boston Common.

The matter of changing the bearing year has
thoroughly discussed from time to time, and still
remains unsolved.

While it has generally been regarded as "a co
devoutly to be wished," but few, I apprehend,
ciently and carefully experimented, so as to
whether the possibility of making the change lies
bounds of human attainment.

Were it an easy matter to make the change, a
it; and in a few years we should be no better
present: the odd years would be simply years
instead of the even years. Hence it is plain t
the *bearing* year that needs our attention so m
barren year. In fact, the thing really desirable,
we should aim to accomplish, is a fair yield of
every year. I have strong reasons for believi
proper and judicious management this end can be

Nature is ever prodigal in the provision she m
preservation and perpetuation of species. Hen
dency of most all fruit-trees is to set more fru
can perfect: especially is it so with the apple; and
year is undoubtedly the result of exhaustion.
tree can be relieved of its burden in a measure
year, and stimulated to production the followin
not reasonable to suppose, that, by following u
ment a few years, this most desirable result can
plished?

Orchards located near woodlands, or any place
tridges pass the winter, seldom fail to produce un
of apples. When a deep snow cuts off their n
they resort to the apple-trees, and feed on the
contravening Nature in her prolific intentions.

A young man from Bristol County, who went
vania some twenty years ago, wrote me in the spr
saying, "I took your advice, and set an orchard
dred trees. I wish you could see it. My neigh
it as a model of perfection. It has been in bearin
years; and, although it only bears the even yea
most profitable investment I have made since lea

Bay State. Now, my object in writing, more particularly, is to learn if there is any way known among men by which it can be made to bear every year. I am willing to make the effort, if I knew what to do. Please advise me." This inquiry led me to think on the subject somewhat closely; and the advice I gave him is involved in the principle above stated. I told him to remove one-half or two-thirds of the fruit the bearing year by the time it had attained the size of walnuts, then early in the fall work in the manure or fertilizer, and in the spring following prune severely, if the trees will bear it. In a letter received from him, dated Nov. 6, 1881, he says, "I must tell you about my orchard. I have astonished the natives by raising a fair average crop of the handsomest apples you ever saw, and the odd year at that. I had but few in 1877, but quite a crop in 1879; but this year my crop is quite equal to last year. You can hardly imagine how much the thinning improves the apples in size. I do not allow them to bear one-half as much as formerly, and yet I realize much more for the crop. I feel confident that your theory is the right one, and I also feel sure of a crop of apples every year. An old Dutchman whose farm joins mine seems to be perfectly bewildered at my success. He says that he always *knowd* a Yankee man could do every thing, but didn't know he could do dat ting."

I do not claim, of course, that a single experiment establishes a theory; but that the remedy we are seeking lies in this direction, I have not a particle of doubt: and I firmly believe, if apple-raising could receive the careful and thoughtful attention which its importance demands, that no department of farm-husbandry would better reward the cultivator.

From what has been already said, the imperative necessity of thinning the fruit becomes apparent; and, where there is a determination to do it, the process is not so tedious as might at first be imagined. A light pole, the length depending on the size of the tree, with a wire spindle in the end, and a codfish hook, or something resembling it, fastened by the side of it, makes a very convenient implement for doing the work. A moderate amount of skill, combined with good judgment, is only required to complete the undertaking. In relation to picking the fruit when ripe, I have only to say, that that method is best, whatever it may be, which takes

the apples from the tree, and transfers them to t
cellar, with the least possible chafing or bruising.

The tendency of the apple to decay during t
warm weather which we sometimes have after ha
been regarded as inevitable, and has had a disc
effect on this branch of rural industry. Instance
wanting, where, in sixty days after picking and b
the shrinkage by rot has amounted to seventy per c

Scientific investigation has revealed to us the
repeated experiments prove, that apples carefully g
subjected to certain conditions, can be kept in a g
of preservation for almost an indefinite period of ti
must be regarded as one of the very important con
which science has made to agriculture.

Any apartment where the light, moisture, and te
can be controlled at pleasure will afford the requis
tions.

One of the least expensive, most efficient, and co
fruit-cellars that I have ever examined comprised
of a barn-cellar.

The barn was forty by eighty feet, the length run
and west. About sixteen feet from the north wal
partition, averaging two feet in thickness, was buil
laid in mortar; and the inside of all the walls and
made smooth by a thick coat of cement. The ent
at the east end, by double doors, the inner one c
a sash. The windows on the north and west cons
single sash shielded by wooden shutters on the out
the south side of the apartment were two bins seve
a half wide and a foot and a half deep, one above t
Where one has a commodious barn-cellar, and plent
on the farm, I estimate that the cost need not exce
dred and fifty dollars.

I was in this cellar early in the spring, and found
perature at thirty-eight degrees; while outside it
three degrees. The bins were filled with appl
although they exposed to view a hundred and tw
surface yards, I failed to find a single specimen
any signs of decay.

But let it not be understood that the work of
fruit is completed. The building of a fine house is

but housekeeping has been found to be something entirely different. To manage a fruit-cellar successfully requires skill, judgment, and a constant supervision. The light should be admitted sparingly, the air kept pure, and the temperature low and uniform.

Apples for market should be carefully packed in barrels, and the head of the barrel so firmly pressed in, that under no circumstances should they be allowed to move in the barrel. The package in which any fruit is presented to the consumer has much to do with the price he is willing to pay for it; and he who uses old barrels instead of new, because he can save ten or fifteen cents apiece in the purchase, has yet a lesson to learn. Putting new wine into old bottles would indeed be wisdom, compared with the folly of putting choice apples into old, musty barrels.

Of course, none but first-class fruit should be shipped long distances, as the freight is regulated by quantity, and not by quality. In sorting and packing apples for shipment, whether they be intended for foreign or domestic market, great care should be taken to have them uniform in size and appearance. Supposing them all to be perfect, large and small should not be packed in the same barrel. Where Nos. 1 and 2 are found in the same barrel, the latter invariably fixes the price for the mixtures.

A friend who has spent three years travelling in England, and countries bordering on the North Sea, assures me that the market for American apples is absolutely unlimited; that the bulk of those grown there would not compare favorably with those which the Berkshire farmer grinds for cider. When a steamer arrives, one of the first things sought for on the invoice is American apples; and the supply has ever fallen short of the demand. Baldwins are now selling (Nov. 1, 1878) on the wharf, as they come from the steamer, for one pound per barrel. The most of the shipments are consumed in the seaports where they are landed, and you rarely find them in the interior.

The belt in which the apple grows to perfection lies comparatively within narrow limits, embracing scarcely ten degrees of latitude. The advantages it offers to the fruit-grower are evidently not fully appreciated.

Much of the fruit which was formerly shipped to New England now finds a market west of the Mississippi.

The business of canning and drying, thoug origin, has assumed enormous proportions, an causes a constant drain on the market, makes i supply the remotest nations of the earth with t of the American orchard.

The CHAIRMAN. We would like to hear how of Lunenburg keeps his apples.

Mr. J. F. BROWN. I have, perhaps, paid as tion to the keeping of apples as any farmer in th have not been able, so far, to keep them the ye large quantities. Something was said by the ess my cellar. It is on the north side of the barn feet in length, covered by the hay-mow, with t Mr. Slade described. I am able to keep it at perature by double windows and doors. Afte cold air in the fall and early winter, we close t and doors, and keep the cellar at as even a tem possible. The secret of keeping apples is to kee moderately dry, even temperature, as near thirty- as possible. Apples will not injure at a tem twenty-six or twenty-eight degrees.

Mr. RUSSELL. How long do you keep them?

Mr. BROWN. I can keep them to June or Jul

Mr. DAVIS (of Plymouth). Is not the cellar

Mr. BROWN. It is underdrained to carry off t and the cemented floors keep it perfectly dry.

Mr. SLADE. How large an orchard have you?

Mr. BROWN. I should judge some twelve to f

Mr. SLADE. What proportion of the trees b year?

Mr. BROWN. We have more fruit the odd ye even year.

Gov. LONG. How have you brought that abo

Mr. BROWN. By cultivation, I think.

Mr. SLADE. Have you trees bearing every ye

Mr. BROWN. Not largely. Perhaps they do extent; but it is not expected that trees can bear every year. My method of getting them into odd year was by cultivation, which I think had to do with it.

Judge DAVIS. Do you let your apples stay o before you take them into the cellar?

Mr. **Brown.** I take them immediately from the orchard into the cellar.

Question. What is your method of cultivation?

Mr. **Brown.** By ploughing, keeping the orchard up, and keeping it fertilized properly.

Gov. **Long.** Did that change it into the odd year?

Mr. **Brown.** I think it did. Trees, by the usual method of culture, cannot produce a large crop two years in succession; but, by giving the orchard extra care, we get a good crop the second year. That is, we may: I do not say that it is sure; but, by making it bear the second year, it becomes pretty well exhausted, and of course the trees then require rest, and, by going over the even year, they are ready again for the odd year. That is what I have arrived at, and I have had good success.

Question. What kind of fertilizer do you consider the best for an orchard?

Mr. **Brown.** I do not know any thing better than ashes or potash.

Question. What distance apart do you set your trees?

Mr. **Brown.** Thirty-three feet.

Mr. **Pierce.** Have you practised fertilizing with potash salts?

Mr. **Brown.** I have not practised it much, only with my peaches and grapes.

Question. Do you barrel your apples immediately after picking them?

Mr. **Brown.** It is my practice to take them from the trees, barrel them, and take them to the cellar on a spring wagon, and immediately deposit them in this cellar, in the barrels, unless I am short of barrels.

Question. You head them up at once?

Mr. **Brown.** Head them up at once.

Question. Do not apples keep better by being picked a little before they are fully ripe?

Mr. **Brown.** An apple in that condition would be likely to wilt too much. The time for picking apples is when they are thoroughly grown. I would have the fruit fully ripe before picking; that is, fully matured.

Question. Not mellow?

Mr. **Brown.** The apple then is beginning to decay.

At this point the Chairman introduced to th
Hon. ARTEMAS HALE, a gentleman ninety-nine
and the oldest ex-member of Congress living. H
cordially greeted, and said, "Gentlemen, I cann
speech. I am very happy to see you all. I have
much interested in the cause in which you are e
many years, but my time has gone by for labor."

Dr. BOWEN. I would like to ask Professor M
to the most recent scientific opinions in regard
apples, — the degree of moisture that is essent
prompted to this by having eaten, last year, Engl
and Russet apples that were two years old, tha
kept in a very moist cellar, — a cellar that conta
the greater part of the year, but which has the re
being the best keeping cellar in our town.

Professor MAYNARD. If the temperature is k
do not see any reason why they should not keep
cellar as well as in a dry one; and of course, if
they would be less liable to decay.

The CHAIRMAN. If there is any gentleman he
keep apples the year round, or has the knowledg
possible, we would like to hear from him how to
there any one here who will tell us the best w
peaches? I will call on Capt. Moore of Concord.

Capt. MOORE. I have been raising peaches
years; and of course I have experienced the sa
that every peach-grower finds, and that is, a dis
"the yellows." I know that there are some ho
who say that there is no such disease; but certain
something that we call "the yellows," that kills
So far, no one has cured that disease, that I have
I known Dr. Goessmann has said that he could c
I think he would hardly say that he had cured
until further trials. That is the only difficulty
peaches. I have succeeded in raising peaches,
fine crop this year on most of the trees. I had
trees that had the yellows: those trees are now
I think that you can grow peaches a great dea
you keep all animal manure away from them, i
give them plenty of ground bone and plenty of p
if you cannot get ashes. If I had plenty of wo

should not care any thing about potash salts, because I should not only get potash, but I should get some phosphate of lime, in the ashes. With that application, you will certainly get better peaches than you can with animal manure. The reason, I think, is that peach-trees, when they are young, ought not to be forced. The first two or three years they grow very fast. You want a fair growth, but not a growth the second year of six or eight feet on a limb (as they will grow if you give them much manure); because, if you grow them in that way, they are very liable to winter-kill. I want a peach-tree grown in a peculiar way. I have a piece of ground covered with peach-trees planted about five years ago. There are about seventy-five of them; and I think seventy-five handsomer peach-trees never stood in Massachusetts in one lot.

If you ask me how I would go to work to raise a peach-orchard, I say, I want to get one-year-old trees, and plant none older. I would like trees that have had a good growth, say five or six feet high. Then, before I planted them out, I would cut off all the broken roots, trimming them off nicely with a knife, and trim off every side-branch of the tree. I have then a straight stick. I would set them out in that way, and then cut them all off to a height of about four or five feet from the ground. I want them to branch out up there. That is contrary to the usual way of growing peach-trees. People say they want to have them branch out close down to the ground, because they will not split so badly, — they won't be up so high in the air. This is an error; for, if you allow them to branch low, the branches will run up at a pretty acute angle, and that angle will always split.

After treating the trees as I have suggested, after the first year's growth, at any time of the year you choose, shorten off those leading branches perhaps to a foot in length. When you shorten them, cut to an outside bud. The difference between cutting to an outside bud or an inside bud is, that the inside buds run up straight in the centre of the tree, and get up in the air, where you do not want them. Cut to a bud pointing outside, and that branch will take a curve, grow outward, and spread the tree. That is the first thing to do. Then you follow that up about three or four years. Let the small branches go, and cut the strong branches, some of them as large as your finger, because the tree will get to growing pretty strong result is, that you have a tree with the branche almost at right angles. You can load that tree do ground, as Mr. Russell has seen on my place, wi prop, without breaking. It is very difficult to branch on a tree that comes out at right angles, at right angles. Then you have a tree that does n into the air: it is handy to pick from. The s would apply to apples, if you were going to thin Mr. Slade recommends. Trim the tree so as to kee growing too high: it can be done very easily, if it the first four or five years; if you let it go thr years, it is pretty hard work to bring it down w want it.

Peach-trees do not last so long as they used to, this disease that I have spoken of. You want to strong branches back every year; and, when they your reach, take one of those little pruning-knive it on a pole like a rake-handle, and cut the strong which do not bear fruit to any great extent, le small branches to bear your fruit, and you will those trees all the peaches that the trees can stand I did this year.

In order to show what I mean by thinning peac say that I told my man to thin the peaches; and, not thin them half enough, I told him to thin th and then we had a storm that blew off a good many and then they were thinned again, and that got t right. If the buds are not winter-killed, there is that a peach-tree will not set fruit enough. Now the buds are winter-killed, or not, depends a great upon whether the wood is ripe in the fall. If y very dry fall, the wood ripens, as it did last y although the winter was one of the most severe had, the peach-trees went through all right. Man animal manure, and making a great growth on prevents the wood from maturing in the fall; w the tree makes a more moderate growth, and a gr will bear the fruit better, with bone, or with bone and potash, I think the wood ripens better.

another point. The chairman of the fruit committee of the Massachusetts Horticultural Society has told me, that, for the last three years, there have been no peaches in the horticultural rooms of so high flavor as those that came from my trees. The garden committee of that society, when they went up to my place, passed a very large peach-orchard in Concord, in which there were probably three thousand baskets of peaches picked this year, and they said that they did not find one really high-flavored peach in the orchard; but that on my place, which they visited on the same day, it was entirely different. Now, I cannot see any other reason for this, except the different method of manuring.

I will say in regard to my land, that, when Professor Stockbridge was there last September, he said that if I was in the western part of the State, they would shut me up in the insane-hospital for trying to grow grapes, peaches, or any thing of that kind, on such poor land. But the land is better than it looks.

Mr. HADWEN. Don't you think that thinning the fruit will have as good an influence as manure in flavoring it?

Mr. MOORE. You can take off one-half the peaches on a peach-tree, if it sets ordinarily full, and you will have, perhaps, just as many bushels of peaches, and the peaches will be worth three times as much for being thinned; and of course, where they are allowed to perfect themselves, the quality is better.

QUESTION. How about the borers?

Mr. MOORE. They do not trouble me much now. I believe I have got ahead of them. You all know, that, if there are any peach-worms in a tree, you will find the gum around the butt, and immediately under the bark (they do not go into the tree much, as the apple-borer does) you will find the borers. They can be cut out very easily with a knife. I, perhaps, have five hundred peach-trees. I thought I would make up something that would suit the borers. I know oil-soap is good. I don't know whether the other ingredients I used amount to any thing, or not; but I know they make it thick. I put about twenty-five pounds of oil-soap into a tub, and dissolved it; then a bushel of cow-manure, fresh from the stable, was put in and stirred up; then a bushel of clay and five pounds of sulphur were

added. That makes a mixture that stays on th
time. I dug away around the butt of the tree
on thick from the branches down. Where I hav
I have not seen any more worms for a long tir
rate, they do not trouble me much now.

QUESTION. Does not digging holes into the
tendency to injure it?

Mr. MOORE. I do not think it injures the t
as the borers do. If I had only the borers to con
I would not borrow any trouble in regard to rais

The older people in this audience remember
one could grow plums. They also remember th
black wart that destroyed the trees, and the c
destroyed the plums. It is a well-settled fact th
wart is a fungus: there is no doubt about it
theory is exploded. You may sometimes find t
the curculio in the soft bunch that comes ou
wart turns black, but it is not caused by the cu
difficulty seemed to be to get rid of that black w
that is mastered with a little care. I planted
trees about five years ago, and they have borne
two years. I wanted to beat the curculio, w
plenty at my place, and I thought I could bea
wart: so I planted those plum-trees in my he
the hens in, and they are bearing full crops ever
first two years I had two black warts. One of th
on the side of a large branch of the tree. I to
and cut it out clean down to the solid wood. If y
on little branches, it would be better to cut the
I did not want to cut off this branch. The cust
this, in regard to the black wart. It has been
fungus; and the limbs where the black wart s
have been cut off, and dropped on the ground
been proved that that fungus will live right
severest New-England winter on the ground, an
to propagate itself the next spring. There is o
to get rid of it; and that is, when you cut off a
drop it in the stove, and then be very careful c
and you are all right. I have thirty trees in c
ground, planted five or six years ago; and, for th
years, I have had no black wart, although there

black wart about my place on the wild-cherry trees, and plenty on some of my neighbors' trees. I think you can keep that off without any trouble.

Mr. **Brown**. What time do you head in your peach-trees?

Mr. **Moore**. Any time from now up to spring.

Mr. **Brown**. Is it not better to do it earlier in the season, before the trees cease to grow?

Mr. **Moore**. The result would be, that you would force the trees into growth, if you cut them back as I cut them. You would accomplish just what you desired to prevent, really.

Mr. **Brown**. A peach-tree grows very late in the season.

Mr. **Moore**. It is a better way to encourage early growth, and then refrain from giving them stimulating manures, which produce a large growth.

Question. Did you ever use coal-ashes on peach-trees?

Mr. **Moore**. Yes, sir.

Question. Do you think they are worth any thing?

Mr. **Moore**. Yes, sir. I think they are worth carting off anywhere, where you have got them around. I use all mine. We burn in the greenhouses, and in the house, perhaps forty or fifty tons a year. I do not throw any of those ashes away.

Question. Where do you put them?

Mr. **Moore**. I put them around my peach-trees, some of them.

Mr. **Peirce**. Do you think the disease called "the yellows" is conveyed from tree to tree by pruning?

Mr. **Moore**. I know it is said so; but I have got so that I believe very little of what I hear, unless I have tested it. The older I grow, the less disposed I am to accept any thing that is brought forward, unless I have tested it. It is claimed that this disease spreads faster when the tree is in blossom than at any other time; that is, when you have a full bloom on the trees, there is more "yellows" developed than other years. The yellows develop on a peach-tree generally after a crop, and when you are getting the second crop, more than any other time.

Judge **Davis**. Have you seen any trouble this year in quinces?

Mr. **Moore**. I have seen trouble; but I have had no ac-

quaintance of my own with it. I lost my quince-t
years ago, and never replaced them. Mr. Slade,
the apple, spoke of changing the bearing year by
the apples. That, I should think, might have a
do it by reducing the crop, because it is well
the exhaustion of any tree or of any plant doe
ordinarily from growing a large amount of frui
perfecting a large number of seeds: therefore, if
your crop of apples, so that the tree does not mat
as many seeds, the tree will be in a better condi
a crop the next year.

The CHAIRMAN. The audience would be plea
from Professor Goessmann as to his mode of
yellows on peach-trees.

Professor GOESSMANN. I do not assert that I
the disease myself, but I am engaged in the inve
the cause of this disease. There are different
regard to the cause. Some consider it a fungu
consequence of the condition of the juice of the
may be due directly to an abnormal condition of
might be traced to exhaustion of the soil, the fun
being secondary. I have made experiments of th
began by feeding the plants with a mixture of
magnesia compounds, and potash, taking care to
excess of potash. Then, turning my experiment
field of vegetable physiology to account, I applied
potash, — a potash compound which has shown
cacy in the development of a healthy leaf-growth.
first sign of a healthy fruit-growth is a healthy
without a healthy leaf, no perfect fruit can be pr
has been found, that, comparing the action of
potash with that of sulphate of potash (two
pounds), the muriate differs widely from the sul
in some instances (for instance, in rye and buck
muriate produces an unusually luxuriant growth
a large grain, while the sulphate of potash, be
as much as the muriate, — the same percentage,
peculiar diseased condition (a yellow appearance o
and therefore interferes with the proper developm
seed. This very remedy I have applied to the pe
have a friend engaged in following up the investi

microscopical observations; and, if his first observation is correct, there is no fungoid growth in that case. The only fungi which have been found are simply external, and therefore may be simply accidental and secondary. But he found (which confirms me in my views) that the cellular mass was overcharged with starch, that the peculiar action of the cellular system in that case was abnormal: in other words, the osmotic action of the cellular mass was interfered with.

We have a few peach-trees upon the college-grounds, one of which the professor of agriculture says is suffering from the yellows. It began four or five years ago. We are applying these chemical compounds. We applied first our mineral fertilizer, and then applied a large amount of muriate of potash, at the same time cutting the tree back about two years' growth. This year that tree shows as healthy growth as any peach-tree on that ground.

These are the facts, as far as they are at the present time on record. I do not pretend to say that I have found the secret; but I am on the way to find it out, if possible.

NECESSITY OF A STANDARD AXLE FOR VEHICLES.

BY JUDGE CHARLES G. DAVIS.

It is worthy of remark, that in that portion of the Commonwealth in which, from the nature of the soil, we are most likely to find sandy roads with ruts, the length of the carriage-axle, and consequent distance of ruts from each other, are also greater than elsewhere. In a section of country in which the soil is more compact, and the roads hard and smooth, the use of a long axle by its inhabitants would be of comparatively little inconvenience to a stranger travelling with short axles. In the part of the State in which you are assembled, in Barnstable, Plymouth, and Bristol Counties, and in the eastern portion of Rhode Island, we find what is known by many carriage-builders as the "New-Bedford Axle," five feet four and a half to five feet five inches, "out to out," in length. These limits very nearly coincide with the original limits of the Old Colony of Plymouth; and this length of axle may well be termed the "Old Colony Axle." These axles furnish, so far as I can

learn, the widest constant, unvarying, single se
the world. I do not mean that carriages are r
wide as this anywhere else; but that nowhere e
used so uniformly and universally as to set th
pleasure and travelling carriages, and to mak
and inevitable rut from which there is no esc
the only track so wide as to control the trav
venience of other vehicles. It has sometimes b
that the roads are improved, and an advant
gained by two or more widths of axles in th
tion. This might possibly be the case in sec
State in which roads are uniformly hard and s
in the regions of the wide axle to which we ref
axle, only nine or nine and a half inches sho
escape the rut on one side or the other, and t
of the rut on another side. There is a horse-
sand, rendering it inconvenient for a horse not
tre between the ruts; whilst the result is, that
is continually obliged to cross the shoulder of t
change fron one rut to another.

As we go west in Massachusetts, the customa
rows to four feet four inches in Springfield, and
to four feet eight inches, out to out; with lig
as narrow as four feet two inches to four fee
The standard track in Maine, New Hampshire,
Western Rhode Island, in the larger part of
and in almost all the Western, Middle, and Sou
is four feet eight inches; whilst everywhere, e
south-eastern section of Massachusetts, and its

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[1] On the contrary, omnibuses in New-York City, in whic
course, no ruts, generally track six feet six inches, but light
two inches. In the Middle States (excepting New Jersey) the
feet two inches and a half, is used for city railways, withou
accommodate their old mail-coach track, which was five feet, c
or five feet two inches, out to out. In Australia the principal c
in use is built very strong, its carrying power ranging from fou
its standard track is five feet nine inches, inside to inside.
track varies; the manufacturers have no standard to guide th
necessity for such has not arisen, they are guided by individua
keeping in view the necessity of giving sufficient width of t
their vehicles from toppling over too easily. In France the
the track of omnibuses to be 1.65 metres, or five feet five inches,
and 1.55 metres, or about five feet one inch, for front-wheels.
is reduced to 1.55 and 1.35; but the roads are excellent, and the
for all tracks.

in Rhode Island, what is known as the wide track does not exceed five feet two inches.[1]

I have given in a note the dry statistics, as far as I have been able to ascertain them, of the width of carriage-tracks among the civilized nations of the earth. And now, what lesson can we learn from them? Is there any reason why there should not be a standard length, at least in New England, and even throughout the world? Is it desirable? If so, what should be the standard? and how can such standard be obtained?

The only advantage which I have heard suggested for the

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[1] Throughout Central New York the wagon-track is four feet ten inches, out to out; in New Jersey, the State track, five feet, centre to centre, or five feet two inches, out to out; and in Hackensack and vicinity, four feet one inch. In the southern part of Pennsylvania, in Delaware and Maryland, including Philadelphia and Pittsburg, the wide track is five feet, centre to centre; but in the central counties of Pennsylvania the carriage-track varies from four feet six inches to four feet ten inches. In Ohio the State wagon-track is four feet ten inches. In Northern Ohio the narrow track, four feet eight inches, is most in use; but in the southern counties a wide track of five feet, centres, is used. In Indiana and Illinois the wide track is five feet, centre to centre; whilst in their northern and western counties the track is four feet eight inches, out to out. In the north-western States, Iowa, Michigan, Minnesota, Wisconsin, and nearly all Kansas and Colorado, the narrow track, four feet eight inches, out to out, is used; but in West Colorado, and until you reach California, the wide track of five feet is used. In Oregon, east of the mountains, is the wide track of five feet, centre to centre; whilst west of the mountains the narrow track of four feet eight inches, out to out, prevails. In California the stage-track is five feet two inches, centres, or five feet four inches, out to out; medium carriage-track, four feet eleven inches out; light-buggy track, four feet eight inches out. In the Southern States the widest track is five feet, centre to centre.

FOREIGN CARRIAGE-TRACK.

Mexico and Central America.—In Mexico the mail-coach track measures five feet to five feet six inches, according to route, but carriages sent there from New York generally have a five-foot track; and the Central American States average about the same as Mexico.

South America.—In Peru and Chili the track is four feet six and a half to four feet eight and a half inches; and in Brazil, of the same width as in England and France. *In England*, with good roads, the track varies from three feet eight inches to five feet.

In Continental Europe the roads are generally good, and the importance of uniformity is not pressing; but none of the tracks exceed five feet. Prussia, four feet four inches, centre to centre; Bavaria, three feet seven inches, centre to centre; Rhenish Bavaria, three feet eleven inches, out to out; Saxony, three feet seven inches and a half, inside to inside; Wurtemberg, three feet eight inches, inside to inside; Hesse, four feet one inch, inside to inside; Baden, three feet eight inches, inside to inside; Holstein-Lauenburg, four feet four inches, out to out; Hamburg, four feet six inches, out to out; Austria, four feet four inches, centre to centre. These measurements are in their foreign measures. For Austria add one-thirtieth of a foot to each foot named, and for all the other Prussian measurements add one-twentieth to each foot named.

long axle is, that it furnishes better facilities fo
This is true, if the additional width is used in spac
the body and the wheel; but, where the spaces ar
two vehicles of different length of axles, the gain
is in favor of the shorter axle. The carriage-build
me that they experience no difficulty whatever in
using wagon-bodies forty inches wide in the clear
wide enough for two provision-boxes which are
inches each. But there are other considerations
roads improve, and are widened, there is not the s
sity for turning short that there once was. A man
his market-wagon or loaded team throughout Mass
to market and back, with the necessity of no sh
In the next place, many wagons are now made
forward wheels turning under, and some with for
much narrower than the rear axle; and many othe
found, by a glance any day at Quincy Market, in
body is built out over the wheels. Any objection
rower axle in Massachusetts than such as now
the sections we have named, is founded rather on
prejudice than on experience or reason. What is
satisfactory to the farmers of Maine, New Hamps
mont, New York, and a portion of Massachusetts,
seriously inconvenient.

What are the advantages of the narrow track?
them, not alone as my own opinions, but as those of
carriage-builders and dealers throughout the land.

First, and perhaps of least importance, coun
through woods, and on by-ways in which there is lit
may practically be worked a foot and a half to tw
rower with an axle of four feet eight inches than w
five feet five inches or five feet six inches; and th
a saving in cost in the making and repair of such
lanes.

Second, the narrow axle finds its way easiest
woods, stumps, and all narrow and obstructed pass

Third, a long axle requires not only the addition
and weight resulting from its additional length, but
axle must be larger and stronger, and therefor
There is, therefore, a saving in cost and in weight
sequently in draught; whilst the additional length

any, in heavy wagons with less width, makes the same area, adding little, if any, to the weight of the body. There are few carriages made for narrow tracks which do not spring by the widening; and it is a matter of common experience, that carriages purchased in the city, and widened for our country roads, are sprung in the axle in a short time. Consider the difference in strength required in lengthening a bar of iron strong enough for its ordinary, reasonable maximum capacity, from four feet eight inches to five feet five inches. Carriage-building has become a science, as well as a trade, and no waste of iron or material is allowed; so that what would be safe and proper in an axle of one width would be unfit for one nine inches longer. Whether the difference in strength is more than the proportional addition in length is a mechanical question into which I will not enter. Although a leverage of two-feet may not give more than double the power of a leverage of one foot, the additional power on a sudden shock, strain, or blow, such as mounting a frozen rut, is vastly increased; and this consideration is enough for our present purpose.

Fourth, there is another advantage in a narrow axle, growing out of the laws of physical forces. A narrow-tracked vehicle runs much lighter to the animal than a wide one, because the leverage is not so far from the centre line of draught. The jerking motion caused by the wheels of vehicles meeting obstructions first on one side, then immediately on the other, when passing over uneven surfaces, worries horses more, with an ordinary weight, than to pull a heavy load when the draught is equal on each side. It follows that the wider the wheels are apart, the greater the leverage, and consequently the harder the jerks and jams which horses have to bear and overcome: in other words, the power should be supplied "in the line of the best support," as a recent writer has expressed it. The nearer the power is applied in a line with the wheels, instead of a line between the wheels, the easier the traction. Accordingly, our horse-railway companies have found that their extra horse hitched in a line of one of the wheels does more effectual work. Under the same laws of traction, persons who have been in the habit of driving narrow vehicles find that in sudden attempts to turn out of a rut, or avoid an object, the car-

riage does not “mind her rudder” so quick on t
axle; but the horse turns first, whilst the carriage la
shock to the axle and wheel is greater, and drivi
sure and safe.

Fifth, with two widths of track in use, these s
have just spoken of are vastly increased in numb
to the narrow axle. Light carriages suffer a grea
while being forced from one rut to another, and by
ing” and being crowded against the deeply-rutte
especially in winter.

Sixth, next let me call your attention to the
arising from uniformity. The narrow track, four
inches, is the track we must practically conform t
nearer the universal, uniform, and standard track
other. I mean, that for the sake of uniformity alon
we may have our individual preferences for a wi
the balance of advantage is in favor of conform
carriage-builders the advantage is, that they could
sell for any section of the country. One carria
writes me that the wholesale trade in carriages is i
so rapidly, that they are shipped to all sections, an
ard track has become almost a necessity. Consider
this interest has become. By our State census of
number of wagon and carriage manufacturers, not
wheelwrights, was 356 in Massachusetts, with an in
of $2,412,705 and a product of $4,343,458. The
steam-power exceeding 1,000 horse-power, 3,072 h
paid out about $3,333,333⅓ for wages. By the Unit
census of 1870, the number of carriage-establishme
Union was 11,849, with a capital employed of $3
paying out over $21,000,000 in wages, using $25,0
material, and producing $65,362,837 of products.
sus included wheelwrights. The census of 1880 gi
carriage-builders proper, employing a capital of $3
worked by 47,000 hands, paid nearly $7,000,000
using nearly $29,000,000 of materials, and turning
$56,000,000 of products, whilst the additional p
manufacturers of carriage and wagon materials
$8,403,441. Massachusetts alone, in 1880, man
carriages of the value of $4,302,321. The figu
sent an increased product in quantity, but a fall

and materials from the figures of 1870. The carriage-builders of all sections desire uniformity; but it is not for their interest alone, but for the interest of the whole country, and the personal convenience of every man in New England, that this uniformity should be brought about. We in South-eastern Massachusetts cannot buy a carriage, and have the pick of the market: we have barred ourselves. We cannot invite entire strangers or friends to spend their summers with us: we bar them by a provincial and an inhospitable custom.

What should be the standard width? I have corresponded with various carriage builders and traders in this and other States, and find no disagreement upon this point. Generally throughout the Northern States the standard gauge of the street-railways is four feet eight inches and a half. In New-York State and City, and in New England, there are no exceptions to this rule of four feet eight inches and a half between the inside upper angles of the track. The tracks of city railways in the West are mostly standard gauge, the same width. In Canada, Mexico, and South America, the standard track (four feet eight inches and a half) is generally in use; and, as the carriage-track of Maine, New Hampshire, Vermont, and New York is four feet eight inches, that width is universally recommended by those who have dealings in carriages. One gentleman writes me that there is hardly a law which the Legislature could enact which would do more practical good than one which would enforce uniformity in this respect. All agree that it would be cheaper to widen than to lengthen an axle, and that by a standard track of four feet eight inches is meant a track four feet six inches from centres; four feet eight inches being from outside to outside. The editor of the "Hub," the organ of the "Carriage-Builders' National Association," to whom I am indebted for much information, has declared, that, "unless distinctly stated to the contrary, the track of a carriage is now always measured 'out to out,' the same as street-railways, by which the carriage-track of cities is largely influenced and practically governed."

How shall this desirable assumption be brought about? Mr. B. C. Shaw of Indianapolis, Ind. (whose firm are making a circle-track carriage, with spring gearings, by which, when the carriage turns, there is a spring joint in the perch, by which the rear wheels turn in as much as the forward wheels turn out, and which avoids any trouble in turning), suggests that Congress pass a law making a uniform track for all government wagons, ambulances, gun-carriages, mail-wagons, etc., and thinks, that, if a government standard were established, State enactments might be made in conformity therewith. But we shall have to wait long for Congress to do any thing in practical matters. Let the Legislature of Massachusetts simply require, that, at the expiration of a certain number of years, all "teams" used for ordinary carriage of produce and merchandise, or passengers, excepting such as are *required* for extraordinary carriage (such as moving houses, etc.), shall have axles not exceeding eight feet and four inches, out to out, under a penalty; and let it be required that all exceptional vehicles shall be licensed by the municipal authority; and the work is done. The Legislature must emancipate those who cannot by any uniformity of action, in any other way, emancipate themselves. Let it remove from the Old Colony this narrow, provincial, inhospitable stigma; and whilst other means of communication between men and nations are hastened from day to day, let it not be said, that, in our little State, its inhabitants cannot drive from one end to the other without finding a change of carriage as common as a change of language in the counties of England or the provinces of Europe.

Mr. Brown. This is a subject I am glad to have brought up, as I have had it in my mind for at least thirty years, having once lived in a section where they ran carriages of one track, and removing to a portion of the State where they varied very much, all heavy carriages running in one track, and lighter ones, in proportion to their weight, varying considerably. You will readily see, all of you, I think, the advantage of having these varied tracks. I had occasion to visit this portion of the State early in the spring one year, after some thaws; and your heavy wagons being all of one track here, or most of them, I found a row of deep ruts in the road. To avoid one row of ruts, the next wagon that comes along passes over them, and cuts other ruts, and so on, until the road is all cut up. Now you will readily see the advantage of having the different tracks. In Worcester

County we run a variety of tracks, and you will readily see the difference in our roads. Where we run one heavy team, which will cut a wide track, perhaps there will be half a dozen lighter ones coming, which will vary in track; and the result is, we have a smooth road all the time. We have no ruts, except in portions where heavy teams are running all the time. It is almost impossible for us to visit this section of country with our light vehicles, because they run narrower, and go bobbing from one track to the other, and it is very unpleasant. For thirty years I have taken notice of that one thing. In the early days of the western country, the farmers used particularly heavy wagons, and there was the same difficulty attending deep ruts. You will find it remedied nowadays very materially.

The CHAIRMAN. · No wagon can come into Plymouth County without a wide track.

Mr. MOORE. I want to say a few words as a farmer, to the farmers here, in regard to this question of the length of axles. In the vicinity of Boston, and all the cities in the eastern portion of the State (I cannot say about the western part), it has become the custom for farmers to sell their produce in bushel-boxes and in barrels; and they have their wagons built to hold two barrels and baskets abreast. Now, suppose you take these narrow tracks: you are going to narrow up the bodies, so that the wheels will be right up to the side of the bodies. Why should we do that? Why should we adopt the track which is adopted by the horse-railroads? That is no good reason. It is understood perfectly that they run the city of Boston; but we, as farmers, do not mean that they shall run the country at present, to say the least. I think that is a serious objection. There is another objection. You make a narrow track, and put a large load of hay on, as I have to, to go to Boston: you will have to haul out on the side of the road, and, if your wheels get into a rut, it will be a very easy matter to unload your hay before you are ready.

I think, with all these objections, although we might talk here all day about the length of axles, we cannot do any thing about it, and the Legislature will not do any thing about it. I am not certain but what the different tracks keep a better road throughout the summer than we should have if the wagons and carriages were all of one track, because they are not all run in one place, digging it out all the time.

Judge DAVIS. With regard to the suggestions which have been made, I will say that there is no doubt, that, if you had a uniformly narrow track, the carriages could, in the long run, be made longer, and you would not have to load so high. We say, "Shall not the Judge of all the earth do right?" I think we might with equal reason ask, "Is not the judgment of all the world always right?" Now, the judgment of all the world is, that a narrow carriage is not more liable to tip over, if the other conditions are changed, than a wider one. If you have your wheels of a gauge-wire narrower than the present one, have your wagon made a little longer, or, if you choose, three or four feet longer. The wheels need not be so high, in the first place, and the load will be more equally distributed. We carry a load of wood in a common horse-wagon, we call it; we carry a cord, if we can, with two horses; we put it in two piles of a certain height. If we wanted to carry a load of wood on a wagon with narrower axles, I think that, practically, all the difference would be, that we should carry our wood in three piles, instead of two; but the three piles would not be nearly as high as they are now. The difference in width would not be great enough to make a third pile of the same height as the two are now, and the result would be that the whole load would be lower than it is with the wagons in use at the present time.

Mr. BROWN. Don't you think it would help the roads very much if you had carriages of different widths?

Judge DAVIS. Certainly, if it is practicable; but it is not practicable where there are sandy roads, where there is but one track. If the law that was proposed last winter providing for wide tires were passed, that might make a difference. If you go up over the hill to East Bridgewater, you will find every team has a wide tire, and it can go anywhere. But practically, in this section of the State, the wide track controls entirely; and, if we have two tracks, they are both wide; and everybody who has a narrow axle hops along, wrenches his carriage, and gets along the best way he can. I do not think that, practically, the market-men would have any difficulty in getting along; for the market-men of almost all the world do get along, even with narrower axles than four feet and eight inches. I suggested that there were prejudices and difficulties to be encountered; for there is no old custom.

whether right or wrong, that somebody cannot be found to uphold: but I think the balance of convenience for the whole State would greatly outweigh the inconvenience, if we had a uniform axle.

Mr. Brown. If you would pass a law that all heavy wagons should be of a certain width, all market-wagons of a certain width, and all light carriages should be narrower, you would have level roads, and the ruts which we now find in some portions of the State would be avoided. I certainly think it would be a very great advantage to have no ruts.

The Chairman. In the absence of Professor Stockbridge, the paper prepared by him will now be read by Secretary Russell.

HARVESTING CORN.

BY PROFESSOR STOCKBRIDGE.

"Corn is king." So the trumpeter of his Majesty has proclaimed in no uncertain sounds. Yet the farmers of Massachusetts have been slow to acknowledge fealty, or pay tribute. They have thought the Bay State was outside the confines of his territory, and that his real realm was in the great valley of the West. But corn is king, nevertheless, "from the mountains to the sea;" and the sooner we arrange ourselves under his banner, acknowledge his supremacy, and obey his dictates, the better it will be for us. He holds sway, not alone by virtue of the absolute wealth he is able to bestow, but because of his ever present help in supplying the numberless wants of the farm, the family, and the home, and his contributions to the comfort and sustenance of his subjects. Dropping this personification here, we observe that the drift of agricultural opinion in Massachusetts from about 1865 to 1875 was, that we could not grow this crop with profit, either because of the cheaply produced and transported western product, or because of the demand of our markets for supplies, in producing which the West could not compete; and therefore it was a stroke of good policy to produce for this market demand, and purchase the corn needed for home consumption. Between 1875 and the present time, this opinion has been materially modified; and corn production has undoubtedly increased, though we have as yet no reliable statistics showing to what extent. There may be favored localities where farmers, with high cultivation on small areas, can make a greater profit by producing perishable crops for a home market, and buying the grain they need; but it is not so with the average farmer of the State. Dense as our population is, we yet have a surplus of land — land on which taxes have to be paid — which now yields little or no income, and which, with proper treatment, is capable of producing remunerative crops of corn; which will have a tendency, not to diminish, but to increase, the value of other crops and of the farm itself. Statistics treat of this only as a grain-crop. So far as I know, the aggregate in tons or in value of the fodder is overlooked in gathering material for the compilation of census-tables; and the absolute value of the crop to the State or nation is based on grain alone. The "fodder-corn" produced in the State in 1875 is given as 15,863 tons, of a value of $164,458. This is but a tithe of the fodder of the cornfields. Judged by the acreage and yields of grain that year, the fodder could not have been less than 70,000 tons, with a value of more than $500,000. This item is one of too great importance to be forgotten in estimating crop values, in the economy of the feeding-stuffs of the farm, or the general utilizing and management of the crop. The Massachusetts farmer must grow it for the grain *and for the fodder;* and all the details of its care should be with both these objects in view. The soil, manures, seed, and tillage best adapted to the growth of Indian corn are all interesting subjects of discussion; but by assignment we are to consider only the best mode of harvesting it. This is done by three methods, each of which has its advocates, and, perhaps in varying circumstances, its advantages and disadvantages. The best method for one locality may not be so for another. At the West, where fodder of all the coarser kinds, and even good hay, are so plenty and cheap that they will bear transportation but a limited distance (and the crop is produced for the grain alone), the best method is one which will secure this in its highest perfection, even if the fodder is injured, or totally ruined thereby, for feeding-purposes. There the entire crop is allowed to stand in the field untouched, until the grain has drawn all the nutriment possible from the stalk, and is perfectly hard, when the ear is husked or picked, and the stalk allowed to remain for roaming cattle, or to be ploughed under as food for a succeeding crop. This method is too wasteful for us; and, to secure its entire value, we harvest by cutting the fodder with the ears upon it, and secure the whole from injury by placing it in compact stooks. But just here is a vital question to be answered; viz., At what stage of its growth is it the best time to harvest it, regard being had to the best condition of the grain compatible with the best condition of the fodder? Of course, the riper the grain, the better its quality; but it will cure sound and hard in average seasons if it is harvested with the stalk, when it is getting out of the milk, and the outer end of the kernel is beginning to glaze. As all the ears of a field will not be in the same condition at any given time, harvest when an average shows a surface too hard to be easily indented with the thumb-nail; but at the same time regard must be had to the condition of the stalk and leaf, and the season. Whether ripe or green, it should be secured in the stook before frost. The grain will not perfect itself after the leaves and stalks have been frozen; and the fodder is nearly worthless. It may be said with truth, perhaps, that the leaves and stalks are in their most valuable condition for harvest while they contain all their albuminoids and phosphates, and before these materials are transferred to the grain; but they are still quite rich in nutritive elements when the grain is in the condition just described. They will then have changed their dark green to a shade of straw-color, the lower leaves and the tips of some of the upper ones will have begun to shrivel, and the whole crop is in condition to harvest with the greatest profit. Harvesting our larger varieties of corn, that will yield from seventy-five to eighty bushels to the acre by cutting it at the roots, is not child's play, but hard, laborious work; and sundry expedients may be resorted to, to lighten and hasten the process. The precise method pursued will be determined somewhat by the after-use which is to be made of the land, and the character of the help employed. If the field is to be sown to winter grain, and before the husking of the corn and the removal of the stooks, the following method will be the easiest and the quickest: Determine by the rows of corn the line on which the first row of stooks shall be placed, and there cut four rows of corn, and lay them in one row of bundles of a size which a man can handle without extreme effort; then on either side of this row of bundles cut four more rows of corn in the same manner, but lay them on the ground with the butts of the stalks towards the row first laid down.

Rye-straw is the best material for binding these bundles, which should be done just as near the ears as possible; and, while the workman has the bundle in his hand, he should turn it over endwise, without lifting it, so that its tip lies where he can reach and set it into the stook without any carrying. Proceed in this manner, putting twelve rows of corn and three rows of bundles into one row of stooks, until the field is finished. This method will leave wide spaces between the stooks for ploughing and sowing; and the strip on which the corn stands can be ploughed and sowed before it is set up, or it can be done afterwards, which is preferable, if the crop is early. In cases where the cornland is not wanted for sowing, and the workmen are not strong and sturdy (which is the case with the speaker), another method may be adopted, which avoids much hard labor, and secures the crop with greater despatch, as follows: Select the corn-row on which the first row of stooks is to be placed, and bend over two hills of corn at the ears, and tie the tops together by turning them over each other in a half-knot; then cut two or four rows on each side of this, and, without laying them on the ground, stand them, handful by handful, in a bracing position, evenly about the two hills which have been tied together. Proceed in this manner until the whole field is completed. In heavy corn it is sufficient to put five rows into one row of stooks. A two-legged "wooden horse" is sometimes used to support the corn as it is cut; but in some respects it is not so good as the tied corn-hills. In both of these methods of harvesting, the stooks should be no larger than is necessary to enable them to stand firmly; should be so arranged as to permit a free passage of wind through them from the ears to the ground; and should have their tops turned over, and be securely bound so low as to strengthen and support them. Corn thus secured should not be considered as safe against all contingencies, or be left in the field until it suits the *convenience* of the farmer to put it under cover; for fall rains, with high winds, may materially damage the stover, if not the grain. It should therefore be examined occasionally, and, as soon as cured, taken to the barn. The grain will usually be ready for the bin when the leaves are dry, and the stalks dry for half the distance between the ears and the ground. If the "stub" stalks are quite green, or contain visible juice, they will do no harm in the stack or mow, if the upper stalks and leaves are well dried. The method of husking must be governed somewhat by the weather, the floor-room in the barn for doing the work, and whether it is desired to save the husks separate from the rest of the fodder. One main thing in the process is to utilize time, and save expense, by handling the stalks as little as possible. This will be accomplished by picking the ears from the stalks in the field, to be husked afterwards, and then to cart the stalks directly to the storage-room. Husking in the field, with average hands, is objectionable, as more or less of the fodder will be wasted. The other method of harvesting to be noticed, and which is practised to a considerable extent, is called "top-stalking." It was the way of our fathers, and, for aught that I know, of the Indians before them. Theoretically it consists in cutting off the sterile stalks at the ground, and the fertile ones, smoothly, at the junction of the ear, when the stalks and leaves are quite green, and the grain just commencing to harden; but practically it is the cutting-off the top-stalks, with one clean sweep at each hill, near the top of the highest ears. The remainder of the stalks, with the ears, are then allowed to stand in the field until they become dry, sear, and dead; when the ears are husked on the hill, or picked and stored in some building convenient to the corn-crib, and husked as opportunity offers. The fodder remaining in the field after taking off the corn is sometimes cut at the ground, and taken to the barn for feeding to stock; but generally the stock are turned into the field in the bleak days of November and December, to pick off some of the dry leaves and husks, and to trample down the remainder preparatory to ploughing it into the soil. The advantages of this method are supposed to be, that, by drying, binding in bundles, and "housing" these stalks at once, it enables the farmer to secure a portion of the fodder in such admirable condition, that it is worth more than the whole would be by any other method; that taking off the top-stalks with their leaves "lets the sun's rays down upon the ears, and hastens the ripening of the grain;" and that it takes less labor, and is much less expensive, and easier, than to handle in husking, and cart and store the entire crop. In these claimed advantages there may be a shade of truth; but the objection to the method is, first, it is wasteful. Much more than half of the fodder is at and below the ears; and this, for all judicious, economical feeding-purposes, is practically thrown away. This objection is not answered by saying the cattle can consume what they wish in the field, and valuable use is made of the remainder to enrich the soil; because these stalks — soured, dried, and made brittle and hard by sun and frost, and soaked and washed by rains — can afford little nutriment to the shivering animals, driven by necessity to feed upon them. They will enrich the soil, will exert a most valuable physical influence, especially if ploughed into clayey land; and so would the whole crop. But we cannot afford to grow Indian corn, in the ordinary way, for green-manuring. Economy demands that the whole crop be saved in the best possible condition, used as stock-feed in the barn, and then used to enrich the soil. But the method is also wasteful of grain. Cutting off such a large portion of the active leaves when the corn is quite immature, and letting the sun in, may dry, but cannot ripen, the grain. For this purpose, all the leaves, stalks, and ears should be connected; and it has been found by trial, that, if the stalks are cut at the roots at the proper stage of growth, the elements they contain will be absorbed, and make sounder, heavier, and more perfect grain, than if they were mutilated by cutting off the top. It is admitted that this is the *easiest* method of harvesting; but greater ease would be secured by not harvesting at all, or by not planting. The second objection to it is, that the loss in fodder and grain is not compensated by ease, or the labor saved. At the present time, labor-saving, and labor-saving machinery on the farm, are indispensable to enable us to meet and overcome competition; but to save labor by neglecting to harvest a crop which has intrinsic value, and has already cost us much, is "saving at the spigot, and wasting at the bunghole." Work, care, and economy, in small things as well as in great, are general essentials for business success; and, if they are ignored, "we cannot afford to grow corn," and may soon reach the condition where we cannot afford to buy it.

Adjourned to evening.

EVENING SESSION.

At the evening session the following lecture was delivered: —

THE SUGARS: THEIR CHEMICAL NATURE AND HISTORY.

ABSTRACT OF LECTURE BY DR. JAMES R. NICHOLS.

The term "sweet" is applied to certain solids and liquids which possess the capability of impressing upon the nerves of taste a peculiar sensation, which is to most people, and especially to children, very agreeable. There is no body or substance which has a distinct physical or chemical property which constitutes sweetness; or, in other words, sweetness as a *thing* does not exist. All we know about it is, that certain molecules of matter grouped in certain forms have the power of producing upon the moist surfaces of the mouth and tongue the agreeable sensation called "sweet." The degree of sweetness is due to the manner in which the molecules are grouped, as intensity or feebleness depends upon the slightest modification in the molecular structure of a body. When the "sweet principle" of plants is spoken of, it is meant that in the sap, with water, are associated some groups of carbon, hydrogen, and oxygen, so arranged as to produce the sensation of sweetness; and by the intensity of the sensation it can be told how they are grouped. Analysis shows the structure of sweet bodies, but nothing more. So far as science is capable of explaining things, it often fails at the most interesting stage of inquiry; and this is the case with sweets. It fails to show why a lump of sugar is sweet, and a drop of vinegar or acetic acid is sour. The point where light ceases to fall upon the pathway of the investigator is that where curiosity and interest most intensely centre. *Why* bodies are sweet, sour, or bitter, can never be known: the mystery belongs to that department of organic life not open to human research; it is the dark field which has no successful explorers, and is known only to the supreme Intelligence.

The statement that the degree of sweetness in bodies is due to apparently slight modification of molecular constitution is illustrated in a comparison of the chemical structure of several allied substances. In a molecule of cane-sugar we have this grouping, $C_{12}H_{22}O_{11}$; in one of glucose, $C_6H_{12}O_6$; and lactose (the sweet principle in milk) has the same constitution. This affords a view of the molecular structure of the three principal sweets, as known and distinguished, the one from the other, by the distinctive degrees of sweetness each possesses. It will be observed that there is no difference whatever in the nature of the materials or atoms of which they are composed: each is made up of carbon, hydrogen, oxygen, and nothing else. The distinction is manifestly due to the grouping of the same elements in differing proportions, or by different methods. We have in cane-sugar a larger molecule, so to speak, it having nearly double the number of atoms, as compared with grape-sugar, and it holds a maximum of sweetness; but if we had the power of doubling the molecule of grape-sugar, it would not give us cane-sugar. We do not at present possess the power of changing the molecule of grape-sugar over into cane-sugar; and if, in the future, some fortunate chemist discovers a method comparatively easy and costless, he will not only immortalize his name, but realize a fortune greater than that possessed by any living capitalist. The molecule of milk-sugar, so far as chemistry informs us, is constituted exactly like that of grape-sugar: it has the same number of atoms of carbon, hydrogen, and oxygen, and combined after a similar plan; but the two substances are decidedly unlike. They differ not only in degree of sweetness, but also in chemical behavior and physical properties. Grape-sugar is not crystallizable: milk-sugar forms microscopic crystals united in nodules. The solution of the first rotates the plane of polarization feebly towards the right; the latter, decidedly.

Cane-sugar, the noblest and best of all the sweets, is presented to us in the form of aggregated, well-defined crystals, permanent under all atmospheric changes, and elegant in lustre and freedom from color when well refined. It is not only the *sweetest* of the sugars, but one of the indispensable gifts of a wise Intelligence to man. It is called cane-sugar because it is produced spontaneously and abundantly in the cane grown in tropical climates: but this is not its only source; the sweet juices of the beet, maple, madder-root, and palm, contain it in considerable quantities. Why, in the order of nature, it was necessary to sweeten our grapes and other fruits with a different kind of sugar, is not clearly understood. If it had so happened, that, in the construction of the juice of the sugar-beet, one molecule of water, or the elements constituting water, had been left out, our farmers would never have almost ruined themselves financially by erecting beet-root sugar factories in New England.

It cannot be a mere matter of chance that substances used as foods by men and animals are some of them sweet, and others acid, or that some are sweetened with sucrose (cane-sugar), others with glucose (grape-sugar), and still others with levulose (fruit-sugar). There is a wonderful adaptation of means to ends throughout nature. The sweet sensation is generally agreeable, as has been before stated; but it must be modified and adjusted, else it would become repulsive. If our fruits were all sweetened with pure cane-sugar in differing proportions, they would lack a certain zest due to a peculiar sweetness which they now possess; or, if our grapes did not form an exception to other fruits in the method of sweetening, they would not be the delicious fruit so universally esteemed. Apples, pears, peaches, and most other fruits are sweetened with levulose, or what may be regarded as a mixture of sucrose and glucose; and differing varieties hold unlike proportions, giving, in conjunction with malic acid and certain essences, the nice shades of flavor observed. The manufacture of sugar is not set up in fruits until the period of maturity is nearly or quite reached, and then the process is usually a gradual one.

The grape vine and fruit do not possess the power of grouping the atoms of hydrogen, carbon, and oxygen so as to form molecules of sucrose: the result of their work is confined to glucose. Hence a grape is never excessively sweet, or it does not reach a degree of sweetness beyond what glucose can furnish. If a grape were a solid mass of sugar, it would not be very sweet, as the sugar is incapable of conveying to the taste any intense sensation. Every one who has tasted old or well-dried raisins has observed the hard lumps of sugar which frequently form, of considerable size, under the skin-covering. These are lumps of glucose which result from the evaporation of the moisture in which it was held in solution in the grape. These lumps are deficient in sweetness, as has been observed from the earliest times. If this substance was supplied in large quantities from grapes or raisins, it would sell at a low price in the market. If a grocer sold it for pure sugar (cane-sugar), it would probably come back to him again, and he would rightfully be charged with fraud. No shrewd dealer or manufacturer would sell it by itself as sugar; but those dishonest in the trade would mix it with cane-sugar, and thus dispose of it with less risk of exciting suspicion. This is now a form of fraud of enormous magnitude, as will be presently shown.

During the wars of Napoleon I., early in the present century, he established the famous Continental blockade by which all products of England and her colonies were excluded from the markets. This, of course, made sugar scarce and dear in France, and stimulated search for products which might be substituted. The grape-crop of France was enormous, and, as commerce was destroyed, it was useless to make wine; so attention was turned to extracting the sweet principle of grapes. Sirups and sugars were made from grape-juice in large quantities; and Napoleon ordered it to be used in the palace, as an encouragement to its production. He issued several decrees in regard to its manufacture; and the celebrated chemists of the time — Proust, Berthollet, Parmentier, and others — were kept busy striving to perfect the products. Montalivet, the great minister of the interior in Napoleon's cabinet, in one of his reports states that it has been ascertained that the grape-sugar equivalent of cane is a little over two and one-half to one. This is not far from correct.

Thus it is shown that the chemists of France were making glucose more than seventy years ago from grapes; and, if they had known that it could be made as well from potatoes, corn, or any other cheap substance holding starch, the discovery might have retarded the great progress that soon followed in producing cane-sugar from beet-juice.

It was as early as 1747 that Margraff made his experiments showing that beets contained sugar; but it was not until Achard, the son of a French refugee in Prussia, took up the subject, and published the astonishing results of his researches, that it excited public attention. The difference between the two forms of sugar — that from grapes and that from beets — was easily seen; and Napoleon's attention was called to it by his corps of illustrious chemists. He immediately gave himself to the work of creating and perfecting this new industry; and in 1812 he had the satisfaction of learning from the reports of his minister of the interior that 334 factories in the empire were producing annually 7,700,000 pounds of beautiful cane-sugar from beets. This seems almost like the work of magic, and illustrates the greatness of the man whose power was felt in every part of the civilized world.

The early attempts to extract sugar from beets in Napoleon's time were made subjects for fun and ridicule. The emperor himself did not escape the lampoons of the wits of the age. A caricature was exhibited in Paris, in which the emperor and the baby king of Rome were the prominent characters. The emperor was represented as sitting in the nursery with a cup of coffee before him, into which he was squeezing a beet-root. Near him was seated the King of Rome voraciously sucking a beet-root; while the nurse, standing near and steadfastly observing, is made to say to the youthful monarch, "*Suck*, dear, *suck:* your father *says* it is sugar."

In manufacturing glucose from corn, the process is, first, to separate the starch from the other constituents of the grain, by simple mechanical means; and then, secondly, to act upon the starch with dilute sulphuric acid (oil of vitriol). When thick gelatinous starch is boiled for a couple of hours with this acid, a curious transformation takes place: the milky paste first changes to a fluid as limpid as water; and, as the change advances, this acquires a sweet taste, which is masked by the presence of the acid. If we now saturate the solution with some earthy carbonate, marble-dust for instance (carbonate of lime), the acid is removed, and a sweet solution remains, which, after purification, may be evaporated to a sirupy liquid, or, by still further manipulation, converted into a white solid, which is grape-sugar.

This is the whole process for making "sugar out of corn;" and it is simple enough. In this chemical transformation nothing is absorbed from the air, and no other substances but dextrine and grape-sugar are generated, and the weight of the sugar exceeds that of the starch employed. What is still more wonderful, the acid used undergoes neither change nor diminution: it is all withdrawn in its original amount after the boiling is completed. If it could be withdrawn in its clear, uncombined state, one carboy of oil of vitriol would serve to change all the corn grown in the United States into grape-sugar. Theoretically one pound of corn ought to make a pound of solid glucose, but in practice it does not quite do this. The cost of solid glucose to large manufacturers cannot exceed three cents a pound, and it may fall considerably below this.

Nothing can be more paradoxical to the popular reader than the statement that sugar is produced by the use of one of the most powerful mineral acids known to chemists. To explain clearly and fully the chemistry of the reactions involved in the process would require more space than we have at command; and also, to understand the nature of the changes, more scientific knowledge would be required than is possessed by ordinary readers.

Glucose is a cheap, imperfect substitute for the genuine sugar of commerce. It is not a poison when well made; and, as regards its healthfulness, it may not be much more deleterious than ordinary cane-sugar. Still, it does produce and aggravate dyspeptic symptoms; and, by its proneness to set up fermentative processes, its use causes flatulency, and painful affections of the bowels.

What becomes of the millions of pounds of glucose manufactured in the Western States every month? It is used mostly as an *adulterant* in the manufacture of table sirups, and in adulterating the dark, moist sugars used largely by the poor. Its next largest use is in the manufacture of candies. All soft candies, waxes, taffies, caramels, chocolates, etc., are made of glucose. Children are therefore large consumers of this substance. The honey-bees, also, are fond of it, and will carry it away by the ton, if placed within their reach. The honey made from it is no better than the pure glucose, as it is stowed away in the comb without change. Human ingenuity, it is stated, has reached the point of making honey, and storing it *in the comb*, without the mediation of the bee: therefore we can now dispense with its services. By appropriate machinery a nice-looking comb is made out of paraffine, the cells being filled with glucose-sirup; and this factitious honey is warranted true white-clover honey from Vermont.

The beautiful clear white sirups found on our breakfast-tables, and used as an agreeable adjunct to our waffles and buckwheats, are largely composed of glucose. A mixture of true "sugarhouse" sirup with glucose-sirup, in proportions of five or ten per cent of the former to ninety or ninety-five per cent of the latter, constitutes the high-priced "maple-drip" of the grocers. A Western chemist reports the results of recent analyses, in which adulterations amounting to from five to fifteen per cent of glucose were found in various popular brands of sugars.

In this brief consideration of the nature and uses of a comparatively new article of manufacture, the astonishing fact is disclosed, that this year more than twelve million bushels of corn have been manipulated to produce an article employed almost exclusively as an *adulterant* to one of the most common and important constituents of food. It is a reprehensible form of fraud, and should be arrested by laws similar to those which govern the sale of the "oleomargarine" compounds. Every package of this sugar should be stamped *glucose*, and sold as such; and every mixture made with it should be accompanied with a statement, stamped upon the vessels which hold it, giving the exact percentage of glucose contained in the adulterated sugar or sirup. A law similar to that which is found on our statute books, regulating the sale of fertilizing compounds, would be effective, if energetically enforced. The loss to purchasers in the glucose-sirups is enormous, as the quantity required to sweeten substances is at least twice as great as when cane-sugar is employed; and the use of this quantity of the agent renders it deleterious to health. The attractive appearance of the sirups, which are white and clear, gives them a wide sale at high prices; and all consumers of sweets in the country are victims to a form of fraud which deserves the prompt attention of our law-makers.

The Board adjourned to Wednesday morning.

SECOND DAY.

WEDNESDAY, Dec. 7, 1881.

The meeting was called to order at ten o'clock by Mr. LANE, who introduced as the chairman for the day Dr. HORACE P. WAKEFIELD, who, on taking the chair, expressed his thanks for the honor conferred upon him, and further said, —

"Now I have the pleasure of announcing that we are going to hear something from a gentleman who lives in that region where 'the shot was fired' that was 'heard round the world.' He is going to tell us something which is worth knowing, and which the whole world should know. I introduce to you Mr. J. B. MOORE of Concord, who will speak to you on 'The Management of Cultivated Mowing-Lands;' and if there is anybody, in my opinion, in the Commonwealth of Massachusetts, who understands the subject, it is Capt. Moore. He needs no introduction, because everybody who has ever had any thing to do with agriculture knows him."

THE MANAGEMENT OF CULTIVATED MOWING-LANDS.

BY JOHN B. MOORE.

The subject assigned for me to speak on this morning — "The Management of Cultivated Mowing-Lands" — I need not say to you is a very important subject; the most important, in relation to the system of the agriculture of Massachusetts, as judged from the census. In money value, the hay-crop far exceeds any other crop grown in the State. The value of the crop of English hay, according to the census of 1875, was $9,106,159, being more than one-fourth of the entire agricultural products of the State. The crops of barley, beets, buckwheat, carrots, Indian corn, clover-hay, meadow-hay, millet, salt-hay, oats, onions, parsnips, potatoes, rye, tobacco, and wheat, amount to $7,200,000, — $2,000,000 less than the value of the crop of English hay alone; so that you will see, although it was said yesterday in a paper that corn was king, that corn has a low position in this State when compared with English hay. The value of the corn-crop of Massachusetts is a little more than $1,000,000. The hay-crop is not a local interest: it is the same from Berkshire to Essex; the same from Worcester to Plymouth; the same, in fact, in all parts of the State. It is not a local interest, as market-gardening and some other interests might be termed; and therefore I may well say to you that it is the foundation of Massachusetts farming. It means sustenance for our cattle; it means milk, butter, cheese, beef, and pork; and it means manure with which to grow the other crops. I think those propositions are all right, — it means all those things. The census of Massachusetts shows an average crop of one ton only to the acre, and the value of that ton of English hay in 1875 was $17.30. Assume, then, that five years is the usual length of time which a piece of land lies in mowing (I mean, gentlemen, without renewing); and, as I have reckoned the cost of growing an average crop, it would be about as follows, under the common method of treatment adopted by the farmers throughout the State. Of course, the statement that I am about to give you may be criticised: some things may be a little too much, and some not enough. But assuming that the labor in ploughing, harrowing, rolling, and sowing the seed, is $6 an acre, the average value of the manure that would be applied to the acre may be reckoned at $25 (supposing that the land is to be seeded at once). The amount of seed that I sow on an acre of land is worth about $2. I also assume that the average top-dressing would be once in the five years, and that would be worth $20 more. Then the harvesting of the five tons of hay five separate years would be worth about $4 a ton, which would amount to $20 more. The total of that is $73.

The average value of a ton of English hay is, as I have said, $17.30. The average cost of growing that ton, if the statement that I have referred to is anywhere near correct, is $14.60; and that leaves $2.70 with which to pay the interest on the money, the taxes, and the fencing. I have given you the averages. You will see that the chances of accumulating money under that system are pretty small, — not so brilliant as you would like to see them.

Now, are you satisfied with any such result as that? I know that the farmers who gather at these meetings are intelligent and progressive men. Those whom I see before me are far above the average intelligence of the State; and I am sure that you cannot be satisfied with any such result. Remember, also, that, to make even this poor showing, many acres of grassland, producing from three to five tons of hay per acre, are reckoned in; so that you can see that some of those acres have got to average very low. You will all agree with me that it is desirable to increase this crop. There will be no difference of opinion, certainly, about that.

Now, what would be a satisfactory crop throughout the State? No matter what amount we get to the acre, we would be better satisfied if we got a little more, but I assume that three tons to the acre would be a satisfactory crop; that is, two tons to the first crop, and one ton to the second, with a reasonable chance of getting more than that the first two or three years after the land is newly seeded.

To accomplish that, high cultivation is necessary. High cultivation is true economy, and should result in not less than three tons to the acre on good grassland. I have used the term "good grassland;" but perhaps, to talk understandingly about this matter, I ought to give you my idea of what good grassland is. I assume that any land in Massachusetts, with reasonably good soil, — that is, not dry enough to suffer from a light drought, not wet enough to grow the wild grasses and rushes, — is good grassland. How should such land as that be made to produce better crops? Let me say, before I go into that, that some of the grasslands in the State are undoubtedly lands that have been naturally too wet to produce grass; but, by draining, the water has been taken off, and more room given for the extension of the roots by the very fact of lowering the water-table, and this draining has, with proper cultivation, exterminated the water-grasses. You have, then, a soil that is as good as any, to produce grass on. You have made a new piece of land of it: you have taken a worthless piece of land, and, by draining and a little manuring, you have made it good mowing-land. Now, how should it be managed to produce better crops? I have about twenty-five acres of grassland. Some of you will say to me, "Well, you have got better grassland than some other people." I allude to that, because that remark has been made to me often. When my father bought the farm which I now occupy, a ton of English hay was not produced on the place; and the grassland that I use now is not the best land I have, because I have to take a large number of acres of the best land on my place to grow something else; but nevertheless it is what I call reasonably good grassland. Now, how should it be managed? I do not like to seed any grassland down in the spring: therefore, if I have any crop on a piece of land that I can get off early in the season, I plough that, and seed it with grass; or, if it is already in sod, then I prefer to plough it some time early in August, and after ploughing, turning it over carefully, I put on about thirty-five dollars' worth of manure to the acre. When I say thirty-five dollars' worth of manure, you will ask me how many cords? I cannot tell you exactly; but it means on my place about thirty-five one-horse cartloads of manure, such as we gather from the barn-cellar, in the pig-pen, and the yard. There is more or less loam in it, or some absorbent; but there is no more absorbent used in the manure on my place than is necessary to take up the liquids. I do not believe in carting your farm into the barn-cellar, and imagining that you have made it into manure, and then carting it out again: I do not believe that is economy or policy. So it gets thirty-five one-horse cartloads of manure to the acre, or that is the intention,—it might fall short one or two loads, or it might overrun one or two loads, but that is the intention,—that it shall have thirty-five one-horse cartloads to the acre. After it is spread upon the land—if you do not use one of those wagons which spreads as it goes along, which I have not used yet, although some of them do the work well—after it is spread, we go over that piece of ground each way with a disk harrow. We prefer that to the others; because, where there are no stones or other obstructions, it makes a piece of ground most like an old field.

QUESTION. Do you put it in heaps before you spread it? or do you spread it from the cart?

Capt. MOORE. We spread it usually from heaps, because it is more expeditious. If you are going to put on fifteen or twenty loads to the acre, you had better spread it from the cart; but if you put on enough, so that you can see it all over the field, you can spread it reasonably well from heaps by looking after the men a little. They will leave a little at the bottom of the heap, if you do not look after them. If they do, you must make some remarks to them to the point.

Where there is less than fifteen loads to the acre, it is not easy to spread it reasonably well, even from heaps; but, where there is quite a quantity, I do not find any difficulty. Then we go over the ground with a harrow each way: the effect of that is to make the ground even. Now, this disk harrow does not leave the surface of the land in a suitable condition to receive grass-seed: therefore we put on what we call a Scotch harrow, — a square harrow, with a joint in the middle; but any harrow will answer the same purpose, only that is made with steel teeth, small and fine, and leaves the ground not quite so fine as the Thomas smoothing-harrow, but sufficiently fine. Then I sow my seed. Now, gentlemen, I know something of what I am talking about; for I want to tell you, that, for more than forty years, there has not been a peck of grass-seed sown on my farm that I have not sown with my own hands. I sow the seed, and give directions, and do some of the other work. I am getting a little lazy, and don't do as much work as I used to; but I know how the work should be done to suit myself, and I try to have it done that way. I am particular, when that piece of ground is seeded, that it shall be level. I am very particular that no piece of land that I seed down shall have depressions in it to hold water, that will freeze in the winter, and kill the grass. My land is naturally quite level; and within the last two years, although the soil is not very gravelly, I have worn out a good iron scraper in simply grading up low places, and now I have got land that you can go over after a heavy rain and not see a puddle, and still there is none of it steep enough to wash. I use a swivel-plough always on the grassland that I am going to seed. If you have a piece of land that you are going to plough and plant a year or two, it is not so important to use a swivel-plough, because you can turn it the other way, and fill up the dead furrows afterwards; but you can use a swivel-plough to a great deal better advantage on your grassland.

I sow a peck and a half of herd's-grass and one bushel of red-top to the acre. I have sown half a bushel of herd's-grass, and various quantities; but I have returned to my rule as being the best for my purposes. I do not say, gentlemen, that it is the best for yours. I have sown a half-bushel of herd's-grass to the acre, and have had my grass thicker than I wanted it. I like to have plenty of substance, so that it will not fall down at the first rain in the spring.

QUESTION. Do you sow any clover-seed with it?

Capt. MOORE. I do not sow any clover-seed; because, if I wanted clover, I should sow it by itself. Clover does not ripen at the same time with herd's-grass and red-top. I do not think it is economy to mix clover with those seeds. I use my hay in this way. Five or six years ago I made it all into milk; but the milk business of late has been very unsatisfactory. I am going to make milk for the Boston market whenever I can get a fair price for it; when I cannot, I am not going to make it. I once belonged, as many of you have I suppose, to the Milk Producers' Association. I saw that they could not accomplish any thing under the methods which they followed; and therefore I withdrew from the association, and made up my mind, that, if I could not sell my hay through selling milk at a fair rate, then I would sell it some other way. I could not get horses to keep to use up the hay; but I found that I could do this, — I found, that, by raising hay of far better quality than the average, I could sell it for more than the market price, and I could buy manure; and I can certainly net more by selling my hay, and buying manure, than I can by making milk. Perhaps all of you cannot do that.

QUESTION. What do you call a fair price for milk?

Capt. MOORE. Every farmer who sells his milk for the Boston market ought to get five cents a quart at his door for it. That is only a fair price. You could not do as the manufacturer of cotton cloth does: you could not buy your cows, buy your hay and your grain, calling your cows your machines, and your hay your cotton or other material, and work it up into milk, and live on it at five cents a quart. The loss is too much on the cattle that represent the machinery.

Mr. TAFT. If you buy every thing.

Capt. MOORE. If you buy every thing, you cannot do it at that price.

Having sowed the seed, I have sometimes simply covered it by rolling: again, I have thought that it was a better way to run an ordinary brush-harrow over it, — it takes but a few minutes for an acre, — using a harrow ten feet wide, with a sweep around each side. Then I usually roll it, to make it a little more smooth. One of these levellers amounts to the same thing as a roller, and does the work just as well, except, if you have a piece of ground that has cracked open in the spring, and you want to close it up, you cannot do it so well with the leveller as you can with a roller. But there is one advantage in a leveller: you can house it by setting it up edgewise, whereas a roller takes up as much room as a wagon.

I want to sow my grass-seed some time between the 15th of August and the 20th of September. Suppose, in the latter part of August, that the top of the ground was extremely dry, and you were all ready to sow: I would not sow it, because some portions of that ground would be moist enough to sprout the seed; and, if the dry weather held two or three days after it was sprouted, it would kill it. You had better wait until after a rain: you cannot get a good growth without moisture. You can sow later than the 20th of September, if the ground is exceedingly rich, or if there is a great deal of manure put on; but in the ordinary method of manuring, and with the ordinary seasons, in which we are liable not to have very much growing-weather after that time, it is better not to sow it later. Therefore, if I am unable to complete what I wish to do, so that I cannot seed early enough, I prepare the ground as I have described, and seed it just before winter closes. If I seed it before winter closes, I am very careful to cover it with a brush-harrow, and put on neither the roller nor the drag.

Now, you might ask me why? Because, if you roll a piece of land just before winter, and it is not covered with grass to protect it, or if you smooth it with a drag, you will notice, that, the first wind that comes after it gets dry, the dust is going off of that piece pretty lively. If you simply cover it with a brush-harrow, which leaves a slightly rough surface, the wind does not have that effect upon it, and it goes through the winter better than it does if it is rolled. That is the only reason why I do not roll it then; and usually there is no necessity, on my land, of rolling in the spring, unless on one piece, where there is more or less clay in the soil. If a good sod has not been formed, it is desirable to run a roller over it early in the spring, to close up the cracks in the ground.

Question. Do you ever sow grass-seed on the snow?

Capt. Moore. I have sown clover on the snow, and I have sown grass-seed on the snow, very early in the spring. The difference between sowing grass-seed extremely early in the spring and in the fall is this: Sown in the fall, the warm weather will start the seed, and it grows quickly; if sown in the spring, it does not come up so quick by at least ten days as when sown in the fall, and then you give the weeds a chance to start, and you have to head off the weeds. If the grass-seed is sown in the fall, the weeds do not start until it is a little warmer than is required to start the grass, and you do not have so many weeds. The difficulty in sowing early in the spring, without any grain with the grass-seed, is the trouble with the weeds. Now, if some of you have a very wet piece of ground, and you sow it in the fall, you will have some weeds the next year. I have grown some excellent crops of weeds; but I figured up those crops of weeds some years ago, and I calculated they were the most unprofitable crops I ever grew. I would not advise you to go into growing crops of weeds. The one great difficulty with young men, when they start in farming, is, that their eyes are so big, they want to plant all the ground in the spring that they can, and they think they are going to hoe it; but, by the time they get into the middle of July, it is all overrun with weeds. If there is any one thing I would say to them more emphatically than another, it is this: You had better start with a less number of acres, and take care of them.

In the course that I have undertaken to lay down here, I do not propose to use any compost-manure during the five years. I know that some of you will disagree with that. I mean, I do not propose to use any top-dressing, which is usually done with compost-manure. I do not think it is economy to top-dress your grassland. It will not do for me to say here that it is not economy, unless I tell you why I think it is not. I do not mean to have you understand me to say that top-dressing a piece of grassland will not make more grass, because it will. I can imagine a piece of land so situated that it might be economy to top-dress it, but it is not economy for me to top-dress mine. I have to use a great deal of manure for other crops, and what manure I can get I want to put on when I seed the land down. I have used thirty-five loads to the acre; and, if I had manure enough for a good deal more than that, I should put it on. I want to use all the manure that I can get on the farm for seeding every year; and I want to use it at that time, because I want to put it where it will do the most good. I want to put this manure where I am going to get the most grass from it: therefore I want to put it on at the outset of the course, because at that time I have sown the seed. I am starting with new seed for a new crop (no wild stuff in my way); and I want to make some big crops the first two or three years in the course, and therefore I want that manure. as I said, in the outset of the course. I am going to start new, vigorous plants, and I want to use it to the best advantage; and I think I do it in that way.

I do not want you to understand that I am going to run that piece of land five years without any thing else, because I do not propose to do any thing of that kind. The first year, with that manure, I take off my two crops. You may say, "If it is dry weather, you are not going to get your two crops." Dry weather has nothing to do with it. If you have good cultivation you will get your two crops: I do not care whether it is dry or wet. I have laid out for them, and I have got them; and I think any of you can, on such land as I have described. If you sow a piece of land that is extremely dry, and which will be all burnt up with drought, you cannot get the two crops.

The spring of the second year, very early, I want to top-dress with a fertilizer. There are some distributers now made that can be attached to a horse-rake; and I can go over a piece of ground and distribute a fertilizer as quickly as you can rake an acre with a horse-rake, so that the cost of putting it on is not much. I want to put on five hundred pounds of ground bone. I do not care about the bone being dissolved; because, if you put it on your land, it is something that you are not going to lose: you are going to get the benefit of it. At the time I put that on, I put on two hundred pounds of muriate of potash to the acre. There may be a great deal better combinations. I presume that Dr. Nichols knows of great deal better combinations; but on my land that does better than any thing I know of. I am not a chemist, and I have to get my information in regard to all these things from actual trial; and, if the application of a particular fertilizer satisfies me that it is paying, I am satisfied with that.

Under the course I have described, I do not find any trouble in getting two crops averaging about three tons to the acre. I am not satisfied with that. I am going to have more, in some way or other. I think I can get it with increased amount of manure. Under my method of cultivation the expense is as follows: —

The labor of ploughing, harrowing, and sowing, is precisely the same as under the common method, $6; manure, $35; the bone and potash, four years, $14 a year, would be $56; the harvesting, five years, two crops a year, $4 each time, would be $40: that would be $137.

The average crop for the five years, taking the average price of the three tons at $17.30, would be $51.90; the average cost under that system per year would be $27.40: that would leave you $24.50 with which to pay your taxes, fencing, and the interest on the money.

I can easily see that some of you will say, He has not allowed any thing for carting that extra ten tons of hay in the five years. That is true: that came into my mind; but you have left the land in enough better condition to pay for carting that hay three or four times over. If you have given it that amount of manure, ground bone, and eight hundred pounds of muriate of potash, in the four years, you have left that land better than it was when you started. I do not think any of you can dispute that.

There is another element of compensation which I have not mentioned, — from high cultivation. I have told you that the average price of a ton of hay is $17.30. The average price of a ton of hay grown under high cultivation is more than that. Some of you will say, If you grow hay thin, it matures better; but do you understand, that, if you grow your hay thin, and leave any vacant spaces, they are to be occupied by weeds and wild grasses, and your hay is not worth so much per ton, and will not average as much? You actually do not get so much hay, and it is not so good as it would be if grown the other way. At any rate, my cattle do not like it as well, and it will not bring so much money.

Now, in regard to the cutting of the hay. What is the object of cutting hay? Why, it is simply for the purpose of drying it, and storing it conveniently, in a sound condition, for the purpose of feeding it out to the cattle, which we are obliged to keep in the barn six months in the year. That is really the object of making hay. Now, in regard to the cutting. I do not expect that half of you are going to agree with me. I believe in cutting hay early. I am speaking of Timothy and red-top. The best way to cut that hay for all purposes is when it is not quite fully in blossom, — I do not want to have it get fully in blossom, — and there are some reasons why it should be cut then. Grass is perhaps the best food to grow cattle, horses, and sheep; and the nearer you can keep your hay to the form of grass, the better. I understand that many men who keep horses, particularly fast horses, want to have their hay cut later. We do not care any thing about fast horses: we are satisfied with any thing that will go about twelve miles an hour when we are out. We do not care any thing about speed: we only want something that we can get around and do our work with comfortably, and go to mill and meeting, etc. Now, the reasons why you should cut it early are, in the first place, that it will make more milk, if you propose to make milk; it will make more and better butter; cattle will grow better on it, and eat it cleaner. The same is true of sheep and horses. Some will say it is not woody enough for horses; but I had rather have my horses eat hay made from succulent grass than to load them up with wood inside.

Chemists will tell you that there is actually more nutriment in the grass after the seed is nearly matured. I presume my friends Dr. Nichols and Dr. Goessmann will say the same thing; but cows, and the other stock that it is fed to, will prove to you that it is better cut early: so you have got your cows on one side, and the chemists on the other. Well, they are both right; that is the beauty of it; and I think that is easily explained. The chemist, by the powerful solvents that he uses in his analyses, will show you that there is a certain amount of nutriment in that food. Well, you can put a cow to eating it, and she will say that that food is not as good as the other; that the early cut, tender hay is the best, and probably for the reason that she can more readily assimilate one than the other. They may both be right; but I am going to stand by the cow in this matter. They are both right; and the variation in testimony is simply because the cow, or other animal, can digest that food, and get the benefit of it in that condition, better than it can in a ripe condition.

Then, there is another point. You do not exhaust either the soil or the plant so much by cutting it early as by cutting it when it is fully matured. The exhaustion of the plant comes largely from the maturing of the seed. I do not think there will be any dispute about that. If you allow the crop to seed, you may perhaps get a little more in your first crop; but your second crop is lost, because you have allowed the plant to become exhausted, so that it starts feebly; and after you get along later in the season, when we are liable to have dry weather, you do not get so good a second crop.

There is still another thing about it. Timothy holds in better when cut early than it does when allowed to ripen. There is another great objection to cutting this hay late, particularly with those who use the mowing-machine, because they are inclined to cut down about as near the ground as they can. They cut some of the Timothy so near the ground, that, if it is a dry time, and followed by a few days of dry weather, the little bulb at the root of the grass, which Timothy has, is killed outright. I have seen large pieces ruined simply by close cutting; and the farmer has simply saved an inch or two of wood at the bottom of the plant, and ruined his grass by the economy. I have suffered in that way, because my men set the mowing-machine too close to the ground. I think it should be set so as to cut the grass three inches high. That may be higher than some of you would put it, but I think it ought to be set three inches high. And in cutting rowen, it is very desirable, for the benefit of mowing-lands, that it should be cut by the 10th of September. You want to leave time for the grass to grow, to make some little covering for the ground before winter, and you get better weather. As a rule, it is better to cut by that time than to allow it to grow longer. Now, many farmers, particularly those who manage their farms under the old system (they used to do it when I was a younger man), believe, that, in preparing a piece of land for grass, the first thing to be done is to plant it with corn and potatoes from one to three years, and exhaust it, and then seed it down with the expectation of getting a crop of grass. That is done to a considerable extent yet. I have no objection to raising crops of corn and potatoes, and all that; but, when you have planted your ground two years, you have largely used up the benefit of the rotting sod that you have turned over in those crops, and you must compensate the soil with something to make that good. You have not properly prepared it for the grass-crop, unless you have put on more manure than your crops have taken off; rather than that, you have used up the sods, which would be a great benefit in growing grass.

A good way for a farmer to do with his land, who has not grass enough to keep his cattle in the winter, is to take a piece of this grassland, that perhaps has run down so that it will produce only from eight hundred to a thousand pounds to the acre, mow that early (by the 10th of June), plough it, turn it over handsomely, — don't half do it, make a good job of it, — pulverize it in the way I have described, and, if you have not manure to put on it, put on a ton of ground bone, undissolved, to the acre, simply fine ground bone (of course you will say that you are not going to get the benefit of a portion of that bone for some time, and that is true), then sow it with millet. You will get fertilizer enough to raise a big crop of millet (I know, because I have not only done it myself, but I have seen it done by some of my neighbors at my suggestion), — you will get a large crop of millet, perhaps three or four tons to the acre. You will get that crop by the middle of August, or before the 1st of September. Then put on the disk harrow, and stir the ground up (there will be no weeds, the millet will keep every thing down), and then sow grass-seed, and you have prepared that land so that it will produce good crops of grass for five years, perhaps not three tons to the acre; but it will give fair crops of grass.

I would like to say one thing further. In my judgment, there should be no feeding on your grassland. I do not allow a cow to go on to my mowing, or any other animal whatever. If you must take that grass off to give to your cows, mow some of your later rowen, and feed it to them green: but do not let them go on the land, and trample it down. If you do, you not only injure the grass itself, but you waste your food to some extent. It is a great deal better to cut it, and feed it to them. Only the day before yesterday I saw cattle running all over some wet mowing-land. I am very sure that the farmer who owns that land is not here in this audience. Nobody here would do such a thing.

I do not know that I have much more to say about the grass-crop; but I would like to remind you of what Swift says, — the old thing that you have heard so many times. He gave it as his opinion, that "whoever would make two ears of corn or two blades of grass grow upon a spot of ground where only one grew before would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together."

Question. When you have got your ground ready to seed to grass, and have not got thirty-five loads of manure to use, and find you have got to use something else, what would you do?

Capt. **Moore.** I generally contrive to have it.

Mr. **Slade.** You are talking to somebody, perhaps, who hasn't it. I haven't it myself to spare.

Mr. **Taft.** You live within twelve miles of Boston, and you can get all the manure you want. Now, Mr. Slade lives where he cannot get it. I live twelve miles from any city. I have not the manure to put on. Now, what shall I put on?

Capt. **Moore.** I want you to understand, in the first place, that I do not live within twelve miles of Boston: it is seventeen miles. In the next place, I do not see why you cannot get manure just as easily as I can. As far as Mr. Slade is concerned, he goes to Fall River, and gets manure cheaper than I do.

Mr. **Taft.** The Boston and Albany Railroad won't carry it to Milford for what it is worth, and then I have to draw it six miles farther.

Capt. **Moore.** I will tell you what some of my neighbors have done. One man, who is only separated from me by the road, has certainly raised some good crops of grass with four or five hundred pounds of some phosphate; but he has let his land run back. He is one of the men, who, having got a good crop, expect that it is going to last them forever. But if you put on a phosphate, it is generally used up the first year. You cannot keep on growing crops without compensating for them. What you want to find out is the cheapest way in which you can make that compensation. I do not know what is the best thing for you to do; but I have told you what will grow millet on poor land, and grass afterwards. I think of all the concentrated manures that you can use, if you can buy it in a cheap form, bone is the best. I think you want a little potash. I have bought sulphate of ammonia, and all that sort of thing, to get nitrogen; and I do not believe I shall invest much in nitrogenous compounds at present.

QUESTION. What would be the value of ashes, compared with bone at the price it is selling?

Capt. MOORE. Ashes are a very valuable manure, but I cannot get them. I would rather have plenty of good wood-ashes than muriate of potash; because, I think, in the form of wood-ashes the plants get hold of it, perhaps, more readily.

Mr. TAFT. What can you afford to pay a bushel for good wood-ashes, if you can buy them?

Capt. MOORE. That is a good deal like asking me how big a piece of chalk is. Ashes vary greatly in value, containing from a pound and a half to five pounds of potash to the bushel. The Canada folks offer to sell good hard-wood ashes by the carload, delivered at our depot, which they say analyze five pounds of potash to the bushel (I do not know whether they do, or not), for thirty-two or thirty-three cents.

QUESTION. Why is it not as well to buy potash, and use that, instead of carting ashes?

Capt. MOORE. Dry ashes are not very troublesome to cart, nor are they dear at thirty-two or thirty-three cents a bushel. In the ashes you are getting a little phosphate of lime; but it is mostly potash: you do not get bone enough. There is the great trouble that farmers have, — they resort to one thing, and expect it to do every thing for them.

Dr. NICHOLS. I would say, in relation to this matter of the value of ashes, that I purchased a carload of Canada ashes in November; and, after making an analysis, I found they gave me about five pounds of potash to the bushel. They cost me, at Haverhill, thirty-four cents a bushel. I think that we lose sight of one point, in our estimation of the value of ashes. The value of ashes is not entirely confined to their alkaline constituents. We usually estimate the potash, without taking much account of the soda. We must remember that there is a trace of soda running through; but it is so small, that we generally say but little about that, and estimate it all as potash. In ashes we get soluble phosphoric acid, and we get soluble silica, which I think is a very important agent. These ashes come from burnt vegetation; and you are simply putting back on the land all those constituents which the land requires. You get in those ashes precisely what your plants want in the form of soluble silica and phosphoric acid; and especially largely predominating over every thing else is the element of potash. I think we have under-estimated the value of potash on our lands. The mistake has arisen, in great measure, from the fact that we have been looking to the results of English analyses. I have found that in England they do not think very much of potash, and do not speak of it with very much emphasis; but on the other hand, so far as my experience goes, it seems to me that potash on our land is very important indeed. I fully coincide with the views advanced here by Mr. Moore with reference to the use of potash with bone. I have found extraordinary good results from that combination. I think if you can get Canada ashes, and mix them with bone in the proportion of two or three barrels of ashes to one of raw ground bone, and allow the mixture to ferment a little, mixing in with it a small portion of sulphate of lime (common gypsum), you will make a fertilizer which is unequalled in value; and it is very simple. I remember recommending bone and ashes at a meeting of this Board a few years ago; and I come back to that again with a great deal of pleasure. I have plots of land in my fields which have not been manured for fifteen years; and my men inquire of me, "How does it happen that we are getting such crops of grass here, without putting on any manure?" I am free to say that it astonishes me, — the persistency with which bones will give us continuous crops, especially in association with wood-ashes.

QUESTION. Will not salt do as well as gypsum?

Dr. NICHOLS. Oh, no! I do not think that I can safely recommend salt. I do not think that we receive any benefit from salt: on the other hand, I think we receive injury from it. I do not believe that salt, as a manurial agent, should enter into our category of substances to be used on our farms. I have reached that result after twenty years' experience.

QUESTION. I would like to ask Capt. Moore, if, in his opinion, it can be made profitable, upon good grassland (such land as he has described), for a man to buy any kind of commercial fertilizer that is now offered in market, at present prices, to grow grass.

Capt. MOORE. I do not want to judge of fertilizers in the market. I have told you that I thought it was desirable to use potash in some form. If you cannot get wood-ashes, use muriate of potash, and use bone, for the purpose of growing grass. I have answered the question as far as that. I have told you that I believe that it is desirable, instead of using a top-dressing of compost-manure, to use a certain quantity of bone and ashes, or bone and potash. I know very well (for I have done it a great many times) how valuable ashes are for breaking down bone, as recommended by Dr. Nichols; but I am in this trouble,—that I cannot get the ashes. Perhaps I can now, by buying the Canada ashes. I think Dr. Nichols has told you of a better preparation and a safer preparation for you to use than these fertilizers; but still, as I have said before, I have seen three or four hundred pounds of superphosphate applied to an acre, and a good crop of grass grown the next year from it.

QUESTION. I would like to ask if you think it profitable to confine yourself to two varieties of seed; and whether it would not be fully as profitable to use more varieties, provided they ripen about the same time.

Capt. MOORE. I expected to be asked that question. As I said to the audience, I use Timothy, or, as it is usually called, herd's-grass, and red-top, because I think those varieties mature nearly at the same time, and are better adapted, not only for purposes of feeding, but to sell, if I cannot get a fair price for my milk; and I think they will produce more. If you sow orchard-grass, you want to sow it alone. If you sow Kentucky blue-grass, there is not enough of it, at least not with me; and I prefer those two grasses. If I am going to grow clover, I will grow clover; but I do not want it mixed with the other seed. There will be some in it, in spite of all I can do; but I do not propose to sow it.

Mr. ——. I have had a little experience, which I will relate (perhaps experience is as good as any thing): Year before last I planted, for the first time, orchard-grass with clover. We had a most remarkable drought in Kingston, and the herd's-grass was entirely killed, and a great portion of the clover; but the orchard-grass stood the drought when other things did not. I found that it ripened exactly with the clover. I would like to hear the experience of others, because it takes more than one swallow to make a summer. I was very much pleased and struck with the appearance of the orchard-grass and clover both ripening together. I know there is a trouble with clover, — that other grass is killed out; but it appears that we have got something that will work with clover in the orchard-grass, and something that is capable of standing a severe drought.

Question. I would like to ask Capt. Moore how unleached ashes compare in value with leached.

Capt. Moore. I cannot tell you. I know leached ashes is a good thing to have; but about the only difference between leached and unleached ashes, as I understand it, is, that one has had the potash largely extracted, and the other has not. In buying leached ashes, it takes about a bushel and a half of dry ashes to make one bushel of leached. If you get it from soap-makers, lime and some other things have been added.

Question. I should like to ask, if, under the system of top-dressing which you recommend, the land will hold out longer than five years; that is, bear paying crops.

Capt. Moore. Perhaps I ought to have touched upon that point. I think when you have cut your plants five years, getting two crops a year, it is better for you to turn that sod over, and start again with new plants.

Question. Will the gentleman tell us how large his last crop is, in proportion to the others, — how much his tenth crop is reduced?

Capt. Moore. If I had a piece of land from which I did not get but three tons to the acre, I should want to begin to plough. Three tons are not going to satisfy me. If you got three tons the fifth year, that would represent five tons the first year.

Question. It seems that the captain has been telling us his experience on what he called good grassland; but he has not told us what kind of land it is. I have noticed that grassland sometimes varies very much in subsoil, and I would like to know what his subsoil is.

Capt. **Moore.** I thought I explained very clearly what I thought good grassland was. I simply said that I regard any land on which the grass-roots will not dry up in a light drought — and of reasonably good soil that has been drained if it has been at all wet, and is not so wet as to produce sour grasses and rushes — as good grassland. I took a piece of land last year that was never ploughed: some of it was a black soil, underlaid with whitish sand in some spots; some of it ran down into peat; and some of it was covered with great tussocks, so that the only way it could be mown was by hand. It had to be raked by hand; and it was so soft that a horse could not walk on it, when I attempted to plough it. I ploughed that piece of land with a swivel-plough, with one of the shares on for meadow-work. I cut off the tussocks in the first place. I have an invention that cuts tussocks better than a hoe: I simply take an old broad axe, put in a long handle, and strike about level with it. You would be surprised to see how quick a bunch of tussocks will come off. Then I filled up some old ditches, and ploughed it. I put on the ordinary quantity of manure, as I have told you I do. Last year I sowed the grass-seed just before winter. The first crop was heavy enough to lodge all over the piece; and the second crop was the heaviest rowen that I grew this year, and perhaps the heaviest rowen that grew in Concord. The rowen was cut about the first of September, had one good day to dry, and was cocked up. Then we had a rain that night, and a drizzle for a week; and it blackened it very badly. I do not like that sort of hay to feed to my stock; and, as we were short of room, I said to my son, "Go out to some of those milkmen, they want to buy rowen, and see if you cannot sell this hay." He got two or three up there, and they tried the rowen to their satisfaction; and we sold it to them for eighteen dollars a ton out on that field. On less than two and a half acres we got 5,840 pounds (I know that, because I got the pay for it by weight): that was good deal heavier than most of the rowen that I had.

Question. The point that I was after was this, — Some muddy lands may have hard-pan underneath; some may have sand: would you treat all those varieties in the same way?

Capt. **Moore**. The piece of land I have described to you ran into every thing you have named. Some was all mud, in some you would strike down to white sand, and in some you would come down to where it was blue gravel. I do not care about ploughing very deep. I have an idea that it is no particular object to plough most grassland more than five or six inches deep.

Question. Did you mix any sand with it where it was all mud?

Capt. **Moore**. If it was a new piece of land that never had been cultivated, if I came down to mud, or came down to peat particularly, I should not expect to grow grass there, unless I put on loam, sand, or any material that I could get handiest; because Timothy will not grow and stand up on a piece of peat-land, without something to make silicate to strengthen the stalk.

Mr. J. P. **King** (of Peabody). I belong in the eastern part of Essex County, and we do not believe in top-dressing land to any great extent. I, for one, believe that if manure is put in piles in the fall of the year on our grassland, and allowed to remain through the winter, nearly one-third of its value evaporates in the air. I am fully aware that many do not believe this; and, if I have a right to my opinion, it is because of experiments I have tried. I do not believe in top-dressing as a general rule. If my grassland needed top-dressing, I should turn it over, and take my pulverizing-harrow, and get the manure into it as best I could by thoroughly pulverizing it, perhaps in the month of September, and then I would sow on my grass-seed; and I should expect a first and second crop the next year.

We have a new way down in Essex County of getting our land into grass. We like to sow winter rye. I would not ordinarily, for a crop of rye, sow more than one bushel and a peck to the acre, but we do sow and get a good catch by using two bushels to the acre; and the consequence is, we get a crop of rye, ordinarily, of two tons to the acre, and it makes nearly as good hay, cut early and before it has seeded, as herd's-grass or red-top. Now, if that can be done as I have done it this last year, would it not be profitable to do so? I got this year, after I cut my rye-crop, a ton of rowen to the acre; and I never knew an instance in my life when I failed to get a good catch of grass after rye. We used to sow oats, thinking that we would get a good crop of hay the next year; but many of you know, that, if we sow oats on good land, they will lodge, and kill out half the grass, and the consequence is, that the next year weeds come up, and take the place of the grass. It is not so with the rye-crop. I believe in it.

Mr. Russell. This question, germane to the subject, was handed in a few moments ago: "The land being a muck-meadow, inclining up, and stocked to grass, what is the best fertilizer when barn-manure cannot be obtained for less than eight dollars a cord? and how should it be applied?"

Dr. Nichols. I hope, gentlemen, I am not making myself too prominent. I dislike to take up too much of your time. This matter is an interesting one. I do not suppose that you expect me to go into a full discussion of fertilizers; I do not think that I can: but I will confine my remarks to some experiments, and the results of some observations, on muck. It seems to me that comes very prominently in here; and I happen to be able to give you some of the results of investigations recently made, which I think will interest you. This paper which I have here presents some views of the nature of swamp-muck, and also in regard to its value in agriculture. I notice that in this question which has been brought in here, there is no recognition of the view which is taken by some, that muck is a manure. The gentleman who puts the question evidently does not believe that muck is manure; and the object of this paper is to show you that it cannot be manure in any sense in which that term is used.

THE NATURE OF SWAMP-MUCK, AND ITS VALUE IN AGRICULTURE.

The general term "muck" has been given to those deposits of dark vegetable matter stored in low bogs and meadows, and in the bottoms of ponds found upon many farms in the Northern States. The term is perhaps as good as any that may be suggested; although it does not convey a clear idea of any special kinds or varieties, of which there are many.

The name "peat" better distinguishes the deposits in most bogs and meadows, but is not applicable to those of frog-ponds and larger basins of water. If the meaning of the word "muck" could be restricted to that class of wet-meadow products in which the natural alteration of plant-tissues had proceeded far enough to fit them for agricultural uses, it would be a convenience, and remove some confusion which now exists among chemists and farmers. It is not difficult to describe the deposits or their physical peculiarities so as to make a clear distinction between what might be called "peat" and muck; and in this discussion I will endeavor to point out the distinction.

ORIGIN OF MUCK DEPOSITS.

The origin of the deposits under consideration is not by any means obscure, and may be stated in a few words. Wherever stagnant water has existed in low basins for a large number of years, a certain class of marsh plants, mosses, and grasses have found favoring conditions for rapid and luxuriant growth. These plants have matured and decayed, finding a tomb in the impure waters which fostered their growth. As the decades of years and of centuries succeeded, with the alternations of heat and cold, the basins were filled up; so that surface-water disappeared, and matted turf, compacted with low and worthless forms of grasses, came into view. In most cases deciduous trees and water-shrubs grew in association with the grasses and mosses; and the annual fall of leaves and dead twigs contributed not a little to filling up the stagnant ponds and puddles.

Whenever vegetable growths become dead, and fall into moist earth with access of air, a process of *eremacausis*, or slow combustion, commences, which, proceeding slowly, ultimately ends in entire disorganization of tissue; and the product is called "humus." The process is different when it falls into the water; as, in the case of large trees and limbs, a dozen centuries will hardly serve to disassociate and change their cellular structure, and some of the finest and most durable timber used in ship and house construction has been exhumed from the vast swamps and bogs found in our own and other countries. The peats and mucks of our own low meadows have, to a large extent, resulted from the decay of the smaller forms of vegetation, as grasses, leaves, and moss. Of all the various forms which have contributed to our muck-beds, the spongy mosses constitute, undoubtedly, the most important constituent.

THEIR AGE.

How long a time it requires to form a well-advanced muck-bed is not certainly known; but under ordinary conditions a hundred centuries may be required, or even five times that number. The stage of decay in which it is found does not always indicate the lapse of time consumed in the changes; as, under favoring conditions of extreme heat, or access of air during frequent low stages of water, the changes proceed much more rapidly. It is probable that no muck deposits on our farms, suited to agricultural uses, can have existed, in their lower strata, less than the time which, according to the Mosaic record, man has existed upon the earth.

DIFFERENCES IN MUCK.

When these deposits are carefully examined by the eye, they present very marked and important physical differences. In texture and color no two can hardly be said to be exactly alike. Some kinds consist almost entirely of the withered remains of plants which have undergone but little alteration, except mechanically; in other varieties the organized structure of the plant remains more or less distinctly visible; in other kinds there is no obvious indication of plant-structure existing. In the latter variety nothing remains but a black unctuous mud, which, when dried, crumbles to a fine dust. I have sometimes found this form of dried muck to be denser than water, having a specific gravity as high as 1.23; but generally it is lower than water, not rising higher than .88.

POND MUD, ETC.

It is not necessary, perhaps, to make further lines of distinction in low-meadow deposits. As regards pond sediments, they belong to a distinct class of waste vegetable material, although identical often, so far as the organic constituents go, with bog deposits.

Three forms of meadow deposits have been pointed out. Those of the first class may be called the "immature forms," where the constituents are coarse and spongy, with fragments of twigs, rushes, and leaves, seen in distinct outline. In the second class the organized structure of plants can be recognized, but the decay has proceeded so far as to break them up into almost indistinguishable forms. These products are rather light and spongy, but much denser than those of the first class. The third class is the black, dense, perfectly metamorphosed humus, with a clayey feel, and, when touched, leaves discoloration upon the finger.

The two first varieties I will designate as "peat;" the last, "muck." All these forms when dried are useful for fuel, but not for employment upon the farm, unless, possibly, as absorbents for liquid manures. The first two forms had better be cast out of the category of useful farm agents, and attention only be given to muck proper.

MUCK PROPER.

Muck, then, considered as the most advanced of all bog deposits, is easily recognized by its peculiar physical conditions, and is the only substance about which farmers need concern themselves; and it now remains to consider its value as a manurial agent. The large amount of water mixed with muck in its natural state is a most serious obstacle to its farm employment. It may be stated to hold a minimum of sixty per cent, and a maximum of ninety-two per cent, the average being, in New-England mucks, not far from eighty-five per cent, of water. To cut out a water-soaked substance like this from a treacherous, spongy bog, lift it into carts, and haul it long distances, involves great labor and expense. If it is allowed to air-dry on the spot where exhumed, some advantage is gained; but it must be remembered, that, under the most favorable weather and conditions for drying, much water remains to be transported. Experiments at my farm upon air-dried mucks, extended over five seasons, showed that water remained in the material to an extent varying from thirty to forty-seven per cent. It is probable that not many farmers have ever seen a specimen of absolutely dry muck; that is, such specimens as the chemist has in hand in making his analysis in the laboratory. The absolute water-free muck is a light substance usually, which the wind will scatter as it does a handful of feathers.

When muck is spread upon a field, much of it blows away in the high winds of summer, when it is very dry from exposure to the hot sun. This is a source of loss not usually taken into account. The light mucks oftener belong to the first and second classes, or what I have designated as "peats."

CHEMISTRY OF MUCK-BEDS.

The chemistry of a muck-bed is interesting, and deserves brief remark, although the analysis which I have to present will afford information upon this point. It is plain that a substance so under the constant influence and action of water can contain no ingredients soluble in that fluid; and hence we fail to find in the ash of muck any of the soluble forms of plant-food. None of the valuable soluble salts of potash, soda, or phosphoric acid, are present in the muck-bed, unless in extremely minute quantities. In soils on higher lands, the humus and ash contain all these soluble agents, derived from the decay of vegetation. It must be kept in mind, that vegetation decays in water under different conditions from that when exposed to air, or in the presence of oxygen, and a different condition of the resultant mass must be expected.

The greater portion of the inorganic material of muck is lime in its insoluble form, silica, iron, alumina, and often magnesia. Of the alkaline earths, lime is present in greatest abundance. From a careful consideration of the results of analysis of a large number of specimens of muck made during the past quarter of a century, under my observation, I have no hesitation in saying *that the ashes of muck are practically worthless to the farmer as a source of plant-food.* I say *practically* worthless; meaning by this, that the inorganic constituents of mucks contain so little of valuable, available, plant-nutriment, that, if they held no other forms, they would be entirely unworthy of attention, even under the most favorable conditions. This view is sustained by the investigations of Kane, Sullivan, Vaux, Regnault, Mulder, Baer, Peterson, Anderson, Wagner, and many other eminent chemists in Europe, and Johnson, Storer, and other chemists in this country: in short, it is sustained by the analysis of every competent chemist whose researches have extended in that direction.

NITROGEN IN MUCK.

As regards the other forms of valuable plant-food contained in muck, I have only to consider nitrogen. All analyses prove the presence of potential nitrogen in mucks, and in some it is found in considerable quantities. The form in which it exists is in combination with organic acids, — the humic, ülmic, crenic, and apocrenic. It has been alleged that free ammonia has been found in some bogs; but I have failed to detect it in any specimens coming under notice, and no reliable chemist so far as I can learn, has declared its presence. Nitrogen is the most costly, and, indeed, the most valuable, of all forms of nutriment needed by plants; and the question of its value as found in mucks is one of high importance in this discussion.

ANALYSIS OF MUCKS.

In the table of analysis presented below, a clear view is given of the amount found in three typical specimens of muck; one of which is from a bog on my farm at Winnekeni, one from a remarkable deposit in Boxford, Mass., the other from a well-known bog at Plaistow, N.H. The equivalent in ammonia (NH_3) is also presented.

	Nitrogen.	Ammonia.
	Per Cent.	Per Cent.
Winnekeni Farm	.56	.68
Plaistow, N.H.	.31	.37
Boxford, Mass.	.50	.61

The above is as found in the wet condition. In the water-free state it stands as follows: —

	Nitrogen.	Ammonia.
	Per Cent.	Per Cent.
Winnekeni Farm	2.47	3.00
Plaistow, N.H.	2.13	2.55
Boxford, Mass.	2.12	2.59

	Per Cent.
The average of fifteen determinations of nitrogen in wet mucks, by Professor Johnson, is	.42
Water-free	2.31

It will be noticed that Professor Johnson's determination shows a little higher percentage of nitrogen in the dry muck than those which I have presented; but the difference is trifling. Taking muck-beds as they are found in the Northern States, it will be safe to assume that they hold on an average, in the absolute dry condition, about two pounds and a quarter of potential nitrogen in each hundred pounds.

The following table gives the results of the analysis of five specimens of muck, showing the amount of water, organic matter, and ash, contained in each: —

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Water	77.36	85.49	76.46	89.35	36.74
Organic (vegetable and volatile matter),	19.65	14.39	22.97	9.64	5.30
Ash, including sand	2.99	.12	.57	1.01	57.96
	100.00	100.00	100.00	100.00	100.00

In No. 5 will be noticed a very great dissimilarity of composition from the others. This specimen was taken from the bare bed of Plug Pond, in Haverhill, Mass., and in appearance is densely black, fine, and "well calculated to deceive." From this bed a neighbor had taken many hundred cart-loads at great expense for use upon his farm. It is a specimen typical of usual pond deposits, which are largely employed in agriculture all over the Northern States. They are worthless specimens.

No. 1 is the sample from my farm, from which the nitrogen determination was made, as given above. The amount of lime contained in the ash (not given in table) is 1.7 in the dry state. It is fully decomposed, dark, and every way of excellent quality.

No. 2 is the sample from Plaistow, N.H., and contains a less amount of water, a larger percentage of ash and organic matter, than No. 1, but is of very good quality.

No. 3 is from Boxford, contains about the same amount of water as No. 2, much less ash, and more organic matter. The nitrogen contained in the last specimens has been given above.

No. 4 is from a large basin called "Sour Meadow," on the margin of Lake Kenosa, in Haverhill, Mass. This specimen holds nearly ninety per cent of water, and has but one per cent of ash. It is not well decomposed, having fragments of leaves, grasses, etc., in the mass. The five samples have been selected with the view of presenting the extremes of variation in muck-beds which are drawn upon by New-England farmers for agricultural purposes. It is now possible to present a clear estimate of the value of the nitrogen in the best specimens. No. 1 from my farm-meadow contains in each ton (two thousand pounds) of water-free muck forty-nine pounds and four-tenths: this at fifteen cents (a fair price) gives a money-value of seven dollars and forty-one cents for the nitrogen. The value of all the mineral and nitrogenous plant-food it contains may be stated as follows: —

Nitrogen	$7.41
Lime	.30
Other salts	.10
	$7.81

The cost of procuring one ton of absolutely dry muck may be understood from the fact that ten tons of the wet mass is required, estimating the water at ninety per cent; which is a fair average for successive seasons. A ton of wet meadow-muck of best quality is thus shown to have a value of seventy-eight cents as fertilizing material for farm-crops, estimating its mineral plant-food constituents as we estimate that found in cow-dung.

ANALYSIS OF COW-MANURE.

With the view of affording a comparison of muck with fresh dung, a sample taken from my barn-stalls (the droppings from cows in milk) is here presented. It contained of

	Per Cent.
Water	81.08
Organic matter	15.96
Ash	2.96
	100.00

The result of this examination may appear somewhat startling, inasmuch as it shows that the fresh cow-dung from the barn contains more water, and less organic matter and ash, than is found in the muck on the farm forty rods distant. It would appear (other things being equal) that the muck is as valuable, or even more valuable, than the dung; but important considerations come in to dispel this illusion. A complete analysis gave, as contained in each ton of the fresh dung, the following amounts of valuable constituents:—

	POUNDS.
Nitrogen	5.11
Phosphoric acid	3.55
Potash	2.00

The nitrogen in manure has a higher value than that in muck; but estimating it the same, with the phosphoric acid, potash, etc., the value stands as follows:—

$5\frac{1}{10}$ pounds of nitrogen, at 15 cents	$0.76
3½ pounds of phosphoric acid, at 12 cents	.42
2 pounds of potash, at 7 cents	.14
Lime and other salts	.33
	$1.65

ANALYSIS OF LIQUID EXCREMENT.

The nitrogenous and mineral value of muck stands to fresh cow-dung as seventy-eight cents to a dollar and sixty-five cents per ton, water-soaked, or nearly three to one in favor of the latter; but it must be remembered that fresh cattle-droppings do not represent manure as found in farmers' barn-cellars. This consists of a mixture of the liquid excrement with the solid. A ton of fresh urine, as determined in analysis from specimens collected at my barn, gave the following results:—

	POUNDS.
Nitrogen	17.50
Phosphoric acid	10.12
Potash	15.90

This result indicates the very high value of liquid manures, giving a value per ton of about five dollars, the estimate being made in accordance with that for muck and for solid excrement. A ton of well-mixed manure, containing equal proportions of the solids and liquids, has a money-value of not far from four dollars; or this is the value of the manure stored in the barn-cellar at Winnekeni Farm, as learned from analysis.

MUCK-HUMUS.

Let us look for a moment at the nature and value of the naked muck-humus, — that is, what remains after the separation of the nitrogen and salts, — and contrast it with exhausted manure. The humus, or "geine," as Dana persists in calling it, which results from the decay, or mouldering, of vegetable matter under water or in moist places, is a very different substance from that which results from the decay or decomposition of hay and grains in passing through the digestive and assimilating organs of animals. It must be admitted that muck very rarely represents merely the mineral constituents of the plants from whose remains it has been formed; neither does its organic portion represent those structures, as when changed under other or usual conditions. In virtue of a kind of dialysis, or chemical re-action, not only mineral constituents are changed or abstracted, but vegetable tissues undergo a metamorphosis which renders the changed mass not as well suited as other varieties of carbonaceous material to form fertile soils.

Hay and other forms of food consumed by animals, in passing through living organs, have their elements so acted upon, that they speedily pass into putrefactive fermentation, which breaks down tissues or cellular structures with great rapidity. The catalysis of life impresses a peculiar power upon animal foods, and introduces a force of disassociation not noticed in other processes: hence *manure* has properties not found in any substance adapted to the nourishment of plants. Muck-humus and dung-humus can only be contrasted to the advantage of the latter. The former resists change (necessary change) when applied to silicious soils; and when muck-humus is mixed in association with manure, the former is distinguishable on fields often for several years after the latter has gone from sight. In any just and accurate estimation of the comparative value of muck and manure, this important factor must not be lost sight of.

FARM-TRIALS OF MUCK.

To present in detail the observations and experiments upon muck made at Winnekeni Farm in the past quarter of a century would require space only afforded by a large volume. In this paper a brief outline or summary is presented. In trials of muck upon the farm, a systematic plan has been adopted, with the view of securing reliable results; and these show that muck is not manure in any proper sense in which that term is used. They further show, that the substance cannot be made into manure without an expenditure for added materials, and at a cost of time and labor which do not comport, under usual conditions, with proper farm economy. The simple mixing of lime with muck betters its condition, but it does not change it into manure.

If muck in its partially-dried condition is to be changed into a mass corresponding in some particulars with manure, not only lime, but nitrogenous salts, potash, soda, soluble phosphoric acid, and other less valuable forms of plant-food, must be added. I have succeeded in forming artificial manures at the farm, using muck as a bulk basis and absorbent, which afforded very gratifying results when applied to growing crops; but the cost rose, in all cases, in due proportion to its value.

In these experiments the material in hand to begin with (muck) had a certain known value, and it would be manifestly empirical to expect from the use of that material benefits which it had not the power to bestow. In trials upon fields, in most instances, I have not learned that the raw material, air-dried or wet, gave results in increased fertility corresponding with expenditures incurred in its application. On dry silicious soils it has not supplied the place or served the purpose of natural upland humus. On medium low lands it has rarely indicated, through successive seasons, any influence for good.

MUCK-MEADOW EXPERIMENTS.

A portion of the farm-meadow from which muck has been taken was reclaimed and drained a dozen years ago, and nearly a thousand loads of sand carted upon it. This afforded, for several years, heavy crops of upland grasses; but, like all muck-meadows, it requires applications of fertilizers to maintain fertility. The surface-soil of a muck-meadow is, from obvious reasons, better adapted for plant-sustentation than the contents deeper down. Portions of the bog were turned up to light and air from depths of a foot or more; and on this, without sand or fertilizers, potatoes were planted. The crop was a failure, although the season was favorable. Root-crops, the cereals, and even the better grasses, do not flourish on a deeply ploughed muck-meadow, so far as my observation extends; and there is indeed no reason to expect different results. These crops all require potash and phosphoric acid for complete development,—agents which are not present, except in minute quantities, in any muck-field. Experiments with muck-soils upon all kinds of plants in pots, carried through several seasons, have supplied interesting facts; but the statements regarding them must be left for another paper and another occasion.

VIEWS UPON THE VALUE OF MUCK.

The laboratory researches upon muck undertaken at my farm, of which a brief and imperfect account is here presented, correspond essentially in result with those of Professor Johnson, and all other chemists at home and abroad who have entered upon like labors. Such, however, is not uniformly the case with the practical use of the material by farmers in the field. A large number of quite intelligent men declare its influence in the direction of soil improvement to be marked and decisive. Others are so loose and extravagant in their statements of benefit received, as to render them of very doubtful accuracy. Nothing is more deceptive and uncertain than observations upon farm-crops, and the influence of soils and fertilizers, when no careful methods and no weights and measures are employed. The eye, used only in a casual way in the hurry of farm-work, is not a safe guide. Much of the confusion and uncertainty in which practical husbandry is involved are due to hasty, careless, unmethodical observations in the field. Better methods and more care are desirable.

CONCLUSION.

To sum up the whole question of the agricultural value of muck, it may be said that it is of great value as an absorbent of liquid manures; and, where it can be obtained easily, large stores of air-dried muck should be secured and used by every farmer. As an application alone to soils of any variety,—silicious, dry, humid, or any other,—it has a very small value. Its whole contained amount of mineral plant-food does not equal in value more than fifty or sixty cents a ton, and the bog-humus in which it is involved is of little value except as an absorbent.

Now let me answer the question. I think that ashes upon meadows have always answered a very excellent purpose. I should recommend the use of ashes always, if you can procure them. If you cannot obtain ashes, the use of sand is excellent. As Mr. Moore has told us, it gives strength to the grass. It probably becomes, in part, soluble,—soluble silica,—and supplies food to the plant. I have found it on my meadows to operate very well.

Mr. GEORGE J. PETERSON. I have often thought that we needed an agricultural dictionary. It seems to me, from this discourse, which is one of the most valuable that has been presented to the Board for twenty years, that the doctor is the man to make that dictionary. For instance, we would all like to know what nitrogen is. You, gentlemen, all understand that nitrogen is a subtile element, but an exceedingly valuable one.

Dr. NICHOLS. I suppose there is a great deal of confusion existing in relation to the employment of the word "nitrogen" in agriculture. Let me see if I cannot show you what is meant by it. Of course, nitrogen is all about us, and forms a very important constituent of air. I have had farmers of considerable intelligence come into my laboratory, and wish to know if I could not furnish them with a bag of nitrogen. Of course they made a mistake. Nitrogen itself is a gaseous body. I suppose the plant must get a portion of nitrogen from the air. I am inclined to think, that, with the common atmosphere, nitrogen is assimilable to a certain extent; how far, I do not know. But when we speak of "nitrogen," we speak of it in combination with other substances, locked up as it is with various salts,—for instance, in sodium it is locked up with caustic soda,—and it has a certain value in those combinations. The plant, when this is dissolved, seems to have the power of appropriating those molecules of nitrogen, and making them into plants; and it serves a very good purpose. I have not cleared up all the points about nitrogen. I can only give the commercial value of nitrogen as we find it in the market. Never, in any case, can you force nitrogen into combination with plants, unless it is first in combination with some other substance, or in the form of ammonia.

QUESTION. I would like to ask how leached ashes compare in value with unleached.

Dr. NICHOLS. That question has been so often asked, that it would seem that most of us ought to know something about it. It depends altogether upon the degree of exhaustion of the potash. The soap-boiler will give you leached ashes which are worth very much more than some others. There is always a portion of alkali in the ashes. I should think that, ordinarily, leached ashes were worth ten cents per bushel, when dry Canadian ashes, giving five pounds of alkali to the bushel, were worth thirty-four cents. That is an approximate estimate.

Mr. PAUL (of Dighton). In regard to the matter of leached and unleached ashes, all I know is as to the results. I have used for twelve years from five hundred to nine hundred bushels a year; and during those years I used, probably, from a hundred to three hundred bushels of unleached, the remainder being leached. A portion of the leached ashes was from soap-boilers, and a portion of them was imported from Canada, said to be hard-wood ashes. I must confess that I made no test or measurements of my crops, which is a very important thing to do; but I observed on my own land and my own crops. I cannot give just the pounds or just the bushels; but, using them side by side, I came to the conclusion, after the experience of years, that, practically, there was but very little difference, on my soil, between the effect of the leached and the unleached ashes. If Mr. Slade is in the room, I think he will corroborate what I am saying as to the effect of the use of ashes in my section of the country. I heard Dr. Nichols in Fall River answer this same question. I think, although I am not quite sure about it, that he then gave leached ashes rather more value than he does now. I have found very little difference practically; and I have watched very carefully, because I get my living from my farming, and I do not want to use any materials unless I get my money back. I have come to the conclusion that the unleached ashes give about the same result as the leached; at least, the effect is so nearly the same, that I cannot tell the difference on my crops. I live near tide-water, but the water is not salt there. During the dry season of the year, the water is brackish; and my land consists of a variety of soils, — some of it is sandy, and some of it has a compact subsoil, and some is porous.

QUESTION. Do you use other fertilizers with the ashes?

Mr. PAUL. Yes, sir. I have used a large variety of fertilizers. I use, during the same year, upon some crops, possibly stable-manure and ashes, guano, bone, phosphates, potash, refuse from the porgy oil-works, and various other materials. I do not use the ashes in combination with other manures, only during the same year. I use manure more freely than many of our farmers do. I put on in the spring a good application of stable-manure, or manure made at my barn, and it is worked into the ground; then an application of ashes; possibly, during the season, an application of fish-guano from the porgy-works, and possibly an application of Peruvian guano, or of the superphosphates, as found in the market.

The CHAIRMAN. Have you ever experimented with leached and unleached ashes without the use of any thing else, so that you know the result was not attributable to some other fertilizer?

Mr. PAUL. No, sir; but I have used equal quantities of the two materials on my crops without being able to detect any difference in the results. I seldom have a year when I do not use more than one fertilizer on my land.

The CHAIRMAN. There is a point where I think the gentleman, like a great many others, is at fault. We use something else, and we do not know what to attribute the product to. If he did not use any other fertilizer on a given spot but leached ashes, and on another spot used nothing but unleached ashes, then he could tell us something definite as to the result; but he does not know whether some of these results are not attributable to some other manurial agent that he has put in.

Mr. PAUL. I have only inferred, that, if the potash which is leached out in the process of leaching was of value, it should tell on the crop, when there is so much potash put on in the one case, and not so much in the other.

The CHAIRMAN. My explanation would be this, — that he is using the ashes on a soil that does not require potash, and consequently there is enough given in the leached ashes. He has virtually wasted the extra amount in the unleached ashes.

Capt. **Moore.** I think, if you will call upon Professor Goessmann, he will give you a solution of this problem; and it will probably be this, — that some soils in Massachusetts need potash, and some do not.

Professor **Goessmann.** The question has been already answered in part; but I think we might take a broader ground. The principle on which vegetable growth is founded is the principle of restitution. If the soil has not potash, the plant which needs it will not grow. If a potash fertilizer added to the soil does not make an impression upon the crop, it shows that potash is not wanted. One thing is sure, — and that is the only thing that is sure, in connection with this question, — the essential constituents of plants cannot replace each other. There are six or seven substances which are essential to plant-growth: if one is wanting, the rest cannot operate. This applies to lime as much as to potash; to phosphoric acid as much as to nitrogen. In our plant here, we find the potash is the larger proportion of the saline constituent. Wherever that plant grows, it must find some potash. In this case, undoubtedly, the soil already contained a sufficient amount of potash to supply the quantity required to produce the growth: without it, it would not have grown. The question is, Where did it come from? Of course, the name "leached ashes" is a collective name, and applies to a variety of materials: sometimes merely the potash has been abstracted; sometimes the ashes have received a certain amount of lime. The potash which the ashes contain may supply the amount required for the growth of the plant. But there comes in another point. If the leached ashes have received an addition of lime — lime is a material which may set free potash; and upon clayey soil the application of lime not only supplies the lime for the plant, but it is a powerful disintegrator of the constituents of the clay. The clay originally came from a rich potash compound, granite. When that clay is only in part decomposed, then, of course, the lime may elaborate a large quantity of potash from the soil; and this is an advantage of the latent resources of plant-food in the soil. If, therefore, these leached ashes operate as has been stated, there are two causes possible, — either that the soil was rich in potash already, or the addition of the lime in the leached ashes has elaborated a sufficient amount of potash from the other natural substances to feed the plant. But without potash the plant could not grow: a certain quantity was required; and, if it was not in the soil, it must have come from some other source. The soil may be the source.

Mr. **WHITAKER.** Are there not in New England, and particularly in Massachusetts, a large number of sandpits which contain a large quantity of potash?

Professor **GOESSMANN.** Yes. "Sand" is also a name which is applied to a great many things. If sand means merely pulverized quartz, it is one thing: it cannot supply plant-food. It may improve the physical condition of the soil, make the soil pervious, but it cannot feed the plant. If your sand is ground granite, — like the sand along the seashore in Kingston and Marshfield, for instance, — such sand is a most valuable constituent of the soil. That soil is far better than the average soil in the State. It consists in the main of crushed granite rock. It is felspar, a constituent in the granite, which gives us the potash. Whenever this mineral constituent is in the sand, of course that sand has a powerful effect on plant-growth. But sand and *sand* are two things, — in the one case, ground quartz; in the other case, largely ground felspar. The two differ widely from each other in composition. If sand contains felspar, then it contains potash, — one of the most valuable constituents of the soil.

Recess until two o'clock.

AFTERNOON SESSION.

The meeting was called to order at two o'clock.

The **CHAIRMAN.** We have with us this afternoon a gentleman from Norfolk County, — an intelligent farmer, — who has a very different farm from the one of which we had the history this forenoon. He went on to that farm, and levelled up the hollows, cut down the knolls, and made the desert to bud and blossom as the rose; and, besides all that, he edits a paper. I take pleasure in introducing Mr. A. W. **CHEEVER**, of "The New-England Farmer."

GROWING AND FEEDING FORAGE CROPS IN NEW ENGLAND.

BY A. W. CHEEVER.

MR. PRESIDENT, LADIES AND GENTLEMEN, — I may say, in opening the subject assigned for discussion this afternoon, that, having spent fifty years on one of the most forbidding farms originally that can be found in Massachusetts, I have learned to have faith in New-England agriculture.

I believe that here in Massachusetts a young man who has a taste for the business, one who loves the soil as a good sailor loves the sea, can, by intelligent industry joined with a reasonable degree of prudence and thrift, attain a success such as the majority of men engaged in other occupations would consider enviable.

Not that all mechanics or tradesmen would desire to exchange places with the farmer, and accept all his burdens, and butt against all the obstacles he may have to contend with during his career (for many may feel that they would be incompetent to meet and overcome them); but they would be glad, if it were possible, to exchange final results, — to accept the farmer's well-tilled acres; his fat oxen; his thrifty, well-trained steers; his deep-milking cows; his promising heifers; his well-bred sheep, swine, and poultry; his loaded fruit-trees; his neatly-kept garden, with its wholesome vegetables, luscious fruits, and beautiful flowers, — in short, his New-England country home as a whole. Indeed, such a home as many farmers have, and more might have, is the life dream and hope of many a merchant and mechanic who will end his days amid the rattle of paved streets and the din of a busy city with hopes and dreams unrealized.

I admit that legitimate farming in New England can give little promise of a very large money-return above a generous living, and a good education for the rising generation; but I count this lightly against the business, for I am told that history tells of tribes of people who knew nothing of what we call money, and yet whose enjoyment of life without it might be the envy of the millionnaire.

With the American people, who have had a new country to subdue and develop, activity and enterprise are characteristics that have been bred in the bone. The healthy Yankee boy finds that energy, and ambition to do, is a part of his nature, and a controlling power.

The New-England farmer of the past, with his house to build, his unsubdued hills to make smooth, his valleys to drain, and his children to clothe and educate, has been compelled, not only to work, but to economize, till in many cases he has acquired, and justly too, the reputation of being, not only an "independent," but a "tight old farmer."

He has felt himself compelled, in his battle of life, with rough-cast acres to develop on one side and the wily tradesman to contend with on the other, to hold on tightly to the strings of his not over-plethoric purse.

Farming in New England, even within my own memory, would have been more appropriately designated, had it been called, as it is now called at the South, "cropping;" for really, there was very little perfectly honest dealing with the soil that was cultivated. Seeds were sown, and crops harvested and consumed, or sold; but who ever thought of paying any debts due to the land?

The agriculture of our fathers may have been justifiable robbery, but it was robbery nevertheless.

And had not the school-boys whom those early crops helped to feed and educate learned of principles concerning the cultivation of the earth of which their fathers never knew and scarcely dreamed of, New England, ere this, might really have been left "out in the cold." But the turning-point is passed. The future is brightening for New-England agriculture. Men of other callings, realizing its importance in many cases even more than do farmers themselves, because possessed of the facilities for a wider observation, have given it of late much of their attention, and are endeavoring to make the cultivation of these worn-out Eastern farms a financial success; while many others are turning towards it, impelled by an inborn love for old mother-earth.

I have told you that I believe in New-England agriculture. I do not forget that men have gone to the great Western prairies with their large capital, which they have invested in acres by the thousand and hundred thousand, in implements for tillage and harvesting which would drain almost to emptiness some of our large agricultural-implement warehouses, in cattle-grazing upon government land, in herds extensive enough to consume the feed in either of our large Massachusetts counties in a single week; and that the possibilities of profit from such enormous investments are almost beyond the comprehension of ordinary minds. I do not forget, either, that men have gone West, and have grown up with the growing country, and become wealthy without great effort. Nor do I forget the cries of suffering, and the hardships inseparable from pioneer life, and the falling by the wayside of the thousands upon thousands whose lives have been sacrificed in this "will-o'-the-wisp" pursuit after a soil more easy to cultivate, and which will constantly give without receiving.

So, when I say that I believe in New-England agriculture, I mean that — taking into consideration the natural character of the soil, the high degree of intelligence that may now be brought to bear upon it, the excellent markets which have grown up at our very doors, the permanent improvements which our fathers and grandfathers have left in every town and county (grand monuments to their industry, economy, enterprise, and patriotism), the beautiful scenery among our wooded hills and river-valleys, the old associations which bind families and neighborhoods, and, last but not least, the burying-grounds where repose the ashes of conscientious fathers, kind and enduring mothers, and loving friends and relatives — New England still holds out inducements to young men who can appreciate these things, fully equal to any thing which the emigrant to a new country has a right to expect during the generation in which he himself lives. I do not propose to quarrel with history; for I am aware that the westward march has been a march of necessity; that under the prevailing ideas, or perhaps the lack of ideas, the old hive could not have contained all the increase of a thrifty people, certainly not all the thousands upon thousands who have joined us from foreign countries: but I can plainly see in this emigration movement the same ideas prevailing which have been a curse to American agriculture almost from the day the Pilgrim Fathers first set foot on these shores.

I refer, of course, to that system of agriculture which makes land grow poorer under tillage, rather than better, and which, sooner or later, must compel cultivators to seek new fields. The agriculture of New England during the past two hundred years, like the agriculture of the United States to-day, hardly deserves the name of agriculture.

I am reminded of the story of a little boy who asked his father if he might go off with a party of other boys for huckleberries. The father gave his consent, and also some good advice. Said he, " Now, Johnny, when you get to the huckleberry-pasture, you will hear some of the boys say, 'Oh, how thick they grow here! come and pick with me.' And another will call out, 'Come and see what a lot of them I have found!' And you will see some of the children spending half their time running from bush to bush over the pasture, trying to find the thickest picking. Now, when you find a bush, or clump of bushes, on which the berries are fairly thick, begin to pick, and fill your basket as though you intended business, and stick to that place till you have picked all the ripe berries that are worth picking, and don't spend your time looking for thicker berries, so long as you find fairly-good picking where you are." The boy heeded the advice of his father; and it is needless to say, that, when the children returned, Johnny had more berries to carry than any of his comrades who had been continually finding better picking, but who lacked the patience to stick to their business. Could the boys of New England for the past two or three generations have been taught to believe in New-England soil as some of us believe in it to-day, and could they have been induced to apply the same energy, skill, and capital that they have used in developing the West, what a picture would New England now present! We are talking of establishing, at great cost, a large park somewhere in the suburbs of Boston (doubtless a very desirable thing to do); but if the farms of Massachusetts for a hundred years past could have been cultivated as some farms are cultivated to-day, and with profit too, Boston might now have had a park that would have been limited only by State lines.

Massachusetts is a thrifty State. For density of population she stands first in rank among all her sister-States, and sixth among all the countries of the world; and yet, if the State were to be divided equally among all her inhabitants, there would be over three acres for each man, woman, and child, or a twelve-acre farm for each family of four persons.

Should not such an area do more towards producing the food consumed in the State? The truth is, we buy nearly all our flour, most of our meat, much of our butter and cheese, and all of our sugar; while the milk sold in our cities is much of it produced from purchased foods.

We have been so often told that New-England soil is unworthy of cultivation, that many of us have come to believe it. The interested speculator in Western land will tell you that a man who knows what he is about cannot afford to take a New-England farm of ordinary quality as a gift.

From my own experience and extended observation among intelligent farmers from Rhode Island to Canada, I think I may say that a man who *does* know what he is about may with safety purchase almost any New-England farm; and if he pays only what the same value in buildings, necessary fences, and pure water, would cost him at the West, the land itself will cost him little, if any, more than nothing.

What New-England soil most needs is men who have faith to cultivate it; and there is plenty of evidence that such men are becoming more numerous, and that the number will increase, as agricultural knowledge increases, until New England shall be noted, not only for being the birthplace of great and good men, but also the home of those whose love is too strong to forsake her.

As I know comparatively little of farming, except what I have learned by experience, I hope I may be pardoned, while treating the subject before us, if some of the every-day operations which I am now carrying on shall appear somewhat prominent.

You know that different individuals may have a common aim or end without necessarily approaching it by the same path. You know there are men now at work, as they believe, for the common good, who are striving by all the power and knowledge they possess to perfect the dairy cow; and you know that some very astonishing results have been reported. That over seven hundred and fifty pounds of good butter can be made in one year by a single cow, that produces a calf in the time, is a statement, which, had it been made a few years ago, would have found no believers; and even now it is quite possible that as many dairymen can be found doubting as believing it. But allowing that these reports of large yields are correct, and even more, that the possible yield from a single cow has never yet been reached, the fact still remains that the great mass of butter-consumers must, for a long time yet to come, be supplied by cows that will very rarely astonish their owners by a close approach to the extreme high figures. Is it not to be feared that a cow which so far outstrips the average of her race will necessarily fail to stamp such remarkable superiority upon her offspring?

It is told of a certain tough old farm-laborer, who lived and worked in my town a generation or more ago, that, when undertaking an extra hard day's work loading manure, he stipulated with his employer that he should be furnished a quart of cider to drink for each wagon-load drawn out. It is not hard to believe, that, with two teams to haul them, and the distance being short, that fifty loads found their way from the stable-windows to the field; and, as the story goes, the fiftieth quart of cider disappeared as the last load went out. Some of you may think of men who would be willing now to undertake the cider-drinking part of the exercise; but I doubt if there is a man present who would have much confidence that he could successfully complete both operations.

Now, it seems to me that it is expecting too much, from cows that have beaten the world in their individual yields, to expect them to produce calves year after year capable of excelling or even equalling themselves.

However successful such efforts may prove, — and we all certainly hope for the best, — common farmers must, for the present, still go on with such stock as they have, or can readily obtain, and must accept results of far less magnitude.

It used to be the fashion, when relating accounts of large yields of milk or butter, to throw in the remark, as an additional point in favor of the cow, that she had been kept all summer in a very poor pasture. I think this fashion is going by. Men who have learned that soils must be fed, if they are constantly cropped, need not be told that animals which produce much must also be freely fed. Good keeping may not alone make a good cow of a poor one; but poor keeping will certainly render a good cow unproductive and unprofitable. Although I have aimed to establish, by breeding, a good herd of dairy cows, yet I have given, perhaps, greater attention to feeding, and especially to learning something of the possible capacity of our average New-England soils. The farm upon which these experiments have been carried on is called a hundred-acre farm, and, when I first knew it, had sixty acres in mowing, tillage, and pasture, and forty acres in wood.

It kept from three to five cows and heifers, a yoke of oxen, and a horse. About forty acres were mowed or cultivated annually, and about half the pasture was also mowed nearly every year to keep down the bushes. The pasture would never keep three cows well through the season; but by pasturing the mowing-lands as soon as the crop of grass was removed, and feeding some hay and grain, the previously named number of animals managed to live.

The annual sales consisted of two or three tons of hay, a little butter, two or three veal calves, a hog, and occasionally a few eggs and chickens.

The hay sold paid the taxes; and enough wood was cut in winter to pay a hired man for six or seven months.

The manure was all thrown out through stable-windows in winter, and left where it dropped in summer, chiefly in the bush-pastures.

My grandfather bought the farm more than eighty years ago, and commenced improving it by digging what stones could be pried out with crowbars and levers, and piling them in rows, about four feet high, across the farm.

The number of stone walls required to fence a farm at that time, it would appear, depended chiefly upon the amount of material at hand. Our fields averaged less than two acres each, while several contained less than a half-acre.

A piece of swamp-land was flowed by an expensive dam, with the view of killing bushes, and bringing in swale-grass, which was cut, and carried on shore upon hand-poles. A large amount of the soil in this swamp was dug out in dry seasons, and carted to the barn-yard for composting, leaving several unsightly frog-ponds to be counted in among the improvements. The large rocks left undisturbed, after building the two or three miles of heavy wall, were thicker in the mowing and tillage fields than were ever the hay-cocks in the best grass-year. The usual rotation was, first year, potatoes on sod, ploughed in the fall, and cross-ploughed in the spring (the numerous rocks made it necessary to cross-plough for each and every crop); second and third years, Indian corn (the land was then considered fit to seed down; and oats and grass-seed, including clover, were sown together in spring); fourth year, clover and after-feed; fifth, sixth, and seventh years, Timothy and red-top, with the native grasses gradually taking the place of those sown; eighth, ninth, and tenth years, and often two to five more, a light crop of inferior hay, and pasture, or pasture exclusively: when the same round was begun again. Ploughing sod was a much-dreaded operation, requiring a strong team and much patience; and to plant and tend from two to three acres of corn and potatoes was considered a pretty good summer's job.

Thirty years ago a radical change was made in the management. Indian corn as a grain-crop, and which had rarely yielded forty bushels per acre, and frequently less than twenty bushels, was abandoned, and corn for green-feeding was grown instead. Oats were also cut early, and fed green, or made into hay. The number of milch cows was gradually increased to ten, and an extra yoke of oxen was added to the team.

Small fruits, for home use, and orchard-trees of many varieties, were planted for market purposes; though the dairy was made the leading business of the farm, and required the purchase of large quantities of grain. Additions were built to the barn, and better conveniences provided for the dairy. The dam across the meadow was dug through, and numerous ditches opened for carrying away surface-water. A cellar was dug under the barn, and the manure saved with care, and spread bountifully over the fields as far as it would go. As they were needed, better ploughs, and other modern farm-implements, were purchased. Mowing pastures to keep down bushes was discontinued, and some thirty acres given over to the growth of wood; while a few acres of the old mowing and tillage land that was farthest from the buildings was set apart for a permanent pasture and exercising-ground for the dairy herd. The clearing and enriching operations, commenced near the buildings, were gradually extended, until twenty-six acres were rendered fit for cultivation, — twenty-two acres in one field, and four in another, — separated by a lane leading from the barn-yard to the pasture. No other fences are now maintained, either across or around the tillage land, although it is bounded on two sides by the public highway.

The heavy work of clearing and draining being finished, a pair of horses were able to do the work which formerly required four oxen and a horse; and, as the butter-market improved, the dairy has been increased, till the milch cows now number from fifteen to seventeen. Finding it often difficult to purchase good cows, breeding them was commenced some ten years ago; since which time the farm has carried, besides its quota of mature cows, a constant relay of young animals, from which to draw as the older ones went to the butcher. For the past few years the farm has carried from twenty-five to thirty hay and grass eating animals, less than ten per cent of them being under a year old.

During the past two years there has been a few tons of hay sold, but none bought. Previously, while the stock was being annually increased, hay was sometimes purchased.

For many years it was my aim to feed chiefly the very best early-cut hay and rowen that I could grow, both winter and summer; though green corn was grown and fed freely during some two months in summer.

As much grain was also purchased and fed, both in winter and summer, as was considered safe to feed, and maintain sound health in the herd.

This system brought excellent results in the way of rich milk; but the milk cost too much, while, in unfavorable seasons for the growth of grass upon dry hillsides, it was found necessary to purchase hay to an extent that left little margin for profit.

Latterly, an entirely different system has been introduced and adopted.

Each year, during the months of September and October, as large a field is sown with winter rye, at the rate of from one and a half to three or four bushels per acre, as may be required for feeding all the stock in the spring from the time it first begins to show a head until it is nearly ready to bloom. The cutting will begin, according to the earliness or lateness of the season, from the first to the middle of May; and, if several sowings are made, the cutting may continue about three weeks, the earliest-sown being about ten days ahead of the latest, while each sowing should last about a week.

As soon as the heads are at their full height, and before a single blossom is seen, the whole field remaining should be mowed, and made into hay, to be fed at any time, summer or winter.

Two years ago I fed rye-hay exclusively about three weeks, or till new hay came in, — the last of June. Should the weather prove unfavorable for hay-making when the rye is at its best, and it stands a little too long, it will make very good feed for horses; and should the weather, as was the case this year, continue bad, the rye will still be valuable for bedding, either for home use or for sale. As a last resort, I have allowed it to mature its seed; but some farmers would plough the crop in, and have another growing in its place immediately. The present year I had about one-third the area of the tillage-land in winter rye; and, owing to the rainy weather in June, three acres were allowed to mature seed. It must be seen that this is a very safe and handy crop to have growing, especially as its principal growth is made during those portions of the year when the ground would otherwise lie idle.

It may follow grass after haying, even after cutting the rowen; or it may follow any of the spring grains, whether they were cut for fodder or allowed to ripen; may be put in after potatoes, either early or late; may follow millet, fodder-corn, or field-corn; and it will, in either case, be out of the way the following spring in season for almost any crop the farmer may desire to plant or sow. No soiling-crop has gained public favor more rapidly for the past few years than winter rye; and yet I believe its cultivation is destined to increase many fold.

Winter wheat sown at the rate of from two to three bushels of seed per acre will produce fodder that is relished by cattle even better than rye. It is more leafy, a little later to mature, is eaten better than rye when advanced to blooming, and comes in as the second green crop in spring. A bald variety is to be preferred, as it makes a smoother fodder than the bearded sorts. The higher cost of seed-wheat is now against its use as a fodder-crop; but when New-England farmers learn that it is as sure a crop here as at the West, and that it will yield as many or more bushels per acre than rye, the scarcity of seed will no longer be an objection to its use.

The earliest spring-sown crop I have grown is spring rye. It is perfectly hardy, and should be got in as early as the ground can be fitted for receiving the seed.

Should the ground freeze hard, or be covered by snow after the rye comes up, it will do very little harm, except by retarding the growth. I have sown four bushels of seed per acre; but if the land is rich, and the weather favorable to growth, a smaller quantity would be as well, as a very thick stand is liable to lodge before getting its full growth.

Spring wheat, oats, or barley, either separately or mixed, may be put in to follow spring rye. I prefer keeping them separate, that each crop may be cut and fed, or made into hay, while in its very best condition.

Oats are more hardy than wheat or barley, and may be sown as early as spring rye, or as soon as the earth will crumble behind the plough. They may be sown, at intervals of a week or ten days, till the weather is warm enough for planting corn. If sown much later, there is danger of loss from rust and blast. Four to six bushels of seed will make a fine growth, which is easily cured in favorable hay weather.

I would never sow grass-seed with oats; but, if the mixture be made, four bushels of oats would make a heavy seeding. Barley-straw is softer than oat-straw: consequently thinner seeding is required. Three bushels on rich land will cover the ground heavily. Barley, being more tender, should be sowed a little later, — after the ground begins to get warm. It will also stand hotter weather without rusting, which is a point in favor of later sowing.

I have the past season been experimenting in a small way with a variety of beardless barley, — the "Nepaul;" which, if it will stand up well, and make as vigorous a growth, would be much more desirable than the bearded varieties, that in their green state cause some cattle considerable annoyance. I am not prepared to express a very decided opinion concerning it, from a single year's trial. A good beardless barley would be very desirable for producing fodder. Of the bearded barleys, I much prefer the two-rowed varieties, as they grow taller, and make a heavier growth.

As soon as the weather is fairly warm, it will be time to plant some variety of corn for feeding after the spring grains. It has been my practice for many years to grow corn specially for fodder, planting either sweet-corn or some of the large Southern or Western dent varieties. I have, early in spring, sown Western corn broadcast at the rate of eight bushels or more per acre, and mowed the fodder when but a few feet high, or long before it showed signs of blooming. I have planted it in drills at the rate of forty kernels per foot, and also quite thinly, so it could attain nearly its natural size. I have also planted sweet-corn both thickly and sparingly, but am beginning to doubt if there is any thing more profitably grown in the fodder-corn line than a vigorous growing variety of ordinary field-corn, planted on rich land as thickly as it will produce good ears. I found my field-corn producing this year at the rate of fourteen tons of fodder per acre (weighed after the stalks had become considerably dry, and the ears ripe enough to husk for seed); while the same variety planted thickly, though weighing while very green two tons per acre more, was lodged badly, and the bottom considerably injured by rotting. When the field-corn was at its heaviest (the ears just beginning to glaze), a given area produced a much heavier crop than did the fodder-corn, and, fed with the ears on, was more relished by the cattle. Corn grown by field-culture thinly enough to produce ears is longer in fit condition to feed than if grown very thickly; while if there is a surplus, as there always should be to insure against drought, the remainder left over after the season of green feeding is past will be much more easily cured, as well as more valuable for winter storage. Until I find cause for changing my mind, I shall in future plant no corn specially for fodder in any of the popular ways, either broadcast or thickly in drills, but will plant for a full crop of ears, and not hesitate to cut it when it is most needed. I believe an acre of field-corn can never produce more flesh, milk, or butter, than if cut when the kernels are just passing the milk stage, and beginning to glaze.

The crop next to receive attention after corn is millet. This is one of the most valuable forage crops a New-England farmer can grow. It is as good as ordinary English hay, will produce upon light lands much heavier crops, and can be grown in a very few weeks.

It can be sown after winter rye, spring grain that has been cut for fodder, and on sod-land, after taking off a crop of hay. Like corn, it is a hot-weather plant, likes a warm, sandy loam, and should not be started till the days begin to grow hot. Sown from the first week in June till the middle of July, a full crop may be expected. I refer now to the common millet with a green head, and the purple-headed Hungarian grass. The golden or German millet requires a longer season by two or three weeks, and makes a much heavier growth. This will grow after winter rye is cut for hay, and will be off in season for sowing rye again, or to seed down with grass. I grew four tons per acre of dry fodder the past summer, after a crop of rye estimated at more than two tons per acre.

A bushel of seed is sufficient for sowing an acre; though a little less may be sufficient of the German variety, supposing the seed to be fresh and good.

When the season gets too late for planting corn or sowing millet, and I find I have any land that would otherwise lie idle, I commence sowing barley for cutting and feeding green in October and November, after corn and millet would be injured by frost. This may be sown after early garden crops are removed, after early potatoes, spring grain of all kinds, early corn, and early millet. If sown any time in July, a full crop may be looked for; and, in a fairly favorable season, much of it will be headed out, if sown through the whole of August.

It occasionally rusts a little, though much less than fall-sown oats, and it may lodge somewhat if the land be very rich and the season moist; but it will generally make a satisfactory return for all it costs. I commenced growing it four years ago, and have increased the acreage each year.

Spring rye and spring wheat have both made good crops with me, sown in the fall; but my experience with them has not been as extended as with barley. The past two years I have sown, during August, barley and winter rye mixed (half of each), at the rate of three bushels to the acre, and with much satisfaction. The barley should head out a little, while the rye should make a heavy undergrowth, together yielding a quality of feed for late October and the first half of November that can hardly be excelled.

The season is at this time so far advanced, and the weather so cool, that, if cut and left in the swath, it will keep well for several days, or it may be stored quite deeply upon the feeding-floor, without heating enough to injure it. I finished feeding rye and barley this year after the middle of November, and previous to that date had fed very little cured fodder of any kind; although there are but about five acres of pasture for twenty-five head of cattle, and the mowing-fields are never fed.

The rye sown with barley, and cut in the fall, lives through the winter, and makes a full average growth the following season.

All these green crops are cut, and hauled to the barn, and are fed at regular hours, morning and evening. It is the aim to give each animal all it will eat up clean, and have a good appetite for more at the next feeding. In stormy weather, or when any thing interferes with cutting in the field, dry fodder of some kind, previously stored, is given instead.

With such a variety of different kinds of fodder coming along from May to November, the cattle rarely fail to eat with a relish. There is seldom the excessive flow of milk, as from feeding in the best pastures in June, or good mowing-fields in September; nor is there ever such shrinkage as during the droughts of July and August, the frosty weather of November, or the backward months of April and May, with the hay-mows almost empty, and possibly the pocket-book more so.

Any crop that overruns present needs is cut when mature, and made into hay; and, so long as it is being handled, it is fed from at the barn, either green, wilted, or dry, as happens to be most convenient. English hay, if I have it, is fed just as freely in summer, if needed, as in winter. I am seldom more anxious about a full supply of fodder than a suitable place for storage. I have been increasing my storage-room almost every year, and am still frequently compelled to put something into stacks.

Although I consider English grass a valuable crop to grow on some kinds of land, I have this year had only about four acres; and the field upon which it grew is now ploughed for corn next year. The poultry-yard, some half-acre in extent, is the only ground on the whole farm, exclusive of pasture, that has not been turned by the plough the present season, while more than half of it has been ploughed or thoroughly cultivated twice.

A few days ago I cut the following paragraph from "The New-England Homestead:" —

> "A graduate of the Massachusetts Agricultural College, whose name is known to all our readers, and who is at present an exile from the Old Bay State, writes in a private letter; 'It is my intention to own a small farm in Massachusetts, sooner or later; and my whole object will be the study of agriculture, in its various branches, from a purely practical standpoint. I maintain that an average Massachusetts farm can support a cow to the acre; and this is one thing I shall demonstrate.'"

"Perhaps it can," adds "The Homestead;" "but it is very certain that not many of them do."

My own experience convinces me that this is not too high a standard. My farm has grown fodder enough to keep an animal per acre, and is now producing a considerable portion of the grain consumed, and also the seed required for sowing, and I am sure that I have by no means reached the limit of production. Indeed, I sometimes feel that I have hardly begun to realize the possible productive capacity of those twenty-six acres. A considerable portion of the land now lies idle several days or weeks every year, for want of a little more help or a little closer calculation.

I grew a crop of weeds after rye this year, that I was ashamed of; and I have had twelve acres of idle land this fall that might have been now carrying a promising crop of winter rye. Two crops per year does not come quite up to my ideal. The acreage the past year, as nearly as I can estimate, has been 9 acres winter-rye, 7 acres oats, 5 acres millet, 4 acres corn, 4 acres English hay (first crop), 4 acres rowen, 9 acres barley (for fodder), 1½ acres for grain, ½ acre winter-wheat (part cut green, and part left to ripen), 1 acre potatoes, 5 acres rye (sowed for next year's cropping), 3 acres barley (sowed with rye for this year's cutting), 7 acres seeded to grass, and 1 acre in garden: in all, 66 acres.

The nearest approach I have ever made towards obtaining the full use of an acre of land through the whole year was with an orchard. It was sown with winter rye the previous fall; and, the spring being early, it was ready to begin to cut and feed the first week in May. About the 10th it was finished; and the ground ploughed, manured, and immediately sown to oats.

You can readily believe that these were at their full height and in bloom the 10th of July. At this time they were cut and made into hay, the ground again ploughed and manured and sown to barley. The barley grew about two and a half to three feet high, was well headed and ready to cut the middle of September, or in season to be entirely out of the way of picking the winter apples, which made the fourth heavy crop of that season. I then had nearly the whole of October for seeding again with winter rye. That I did not do so, I suppose, may be taken as evidence that I have a little more land than I can fully use.

By the old system of farming, where the main object was to get out of the land all the fertility possible without carrying any thing back in return, one crop in a year was about all the land would usually bear; but, by the system I have partially adopted, the number of crops that can be profitably grown is limited only by the length of the season.

Few of us, I fear, realize how quickly most of our annual crops are grown, and how much of the time in each year our land is absolutely idle, or at best only producing worthless or noxious weeds.

Indian corn occupies the land longer than any of our staple crops; and yet, if planted by the first of June, it should by the middle of September be sufficiently ripened to cut up, and carry from the field. There is ample time in nearly every portion of Massachusetts to take off a crop of rye before planting, and to put in another after the corn is harvested. The chief difficulty is in being ready to do all the work at the proper time. The Early Rose potato may be taken off in season for a full crop of barley in the fall, and any variety may be followed with rye for the next year's cutting.

Our hay-crop is grown in little more than eight weeks, and may be cut in ample time for obtaining a full crop of millet before the autumnal frosts. Winter rye, winter wheat, and all the spring grains, if allowed to go to seed, are ready to harvest throughout Massachusetts in July; and, unless the ground is successfully seeded with grass, it usually produces little except useless weeds the remainder of the season. Is it not, then, a wiser economy to grow valuable forage crops at the rate of two or three tons of dried fodder per acre than to give the land over to such weeds as barn-grass and Roman wormwood?

How many of us would be willing to hire money at six per cent interest, and keep it on hand nine or ten months, for paying a debt that will not become due till the end of that period?

One reason why we so dread a mortgage is because the interest is accumulating against us, and growing bigger nights and Sundays; but, if the property upon which interest be paid is constantly productive, then a mortgage may not necessarily be feared.

The grand mistake that New-England farmers are making is in carrying, in their names, too much land that is lying comparatively idle. They are paying interest and taxes on barren fields which ought to be producing valuable crops, and they pay interest and taxes on empty buildings that ought to be filled by the crops from these barren fields. They hire land, or (what is the same thing, or worse) buy land with money hired at high rates of interest, pay as high wages for labor as enterprising mechanics and tradesmen pay, and then employ this land and labor in growing crops which would disgrace Nature, were Nature left to have her own way. It is true, the time has been when a liberal income could be secured by cropping wide areas of New-England soil, but that time is passed; and the sooner farmers realize that fact, and learn how to adapt themselves to the changed conditions, the better it will be for them, and the sooner will New England be able to regain the proud position so long held, but which has been gradually slipping from under her feet.

I think I have never found a hundred-acre farm in Massachusetts that might not make two fifty-acre farms, each capable of producing more than the whole does now; and the average farm may be divided and subdivided I know not how many times, before its fullest productive capacity will be reached.

I have for a few years been endeavoring to increase the profitable productive capacity of Pine Hedge Farm, but have never yet been satisfied that I had reached even half way to the maximum point. A great deal of labor has thus far been annually expended in improvements which should pay quite as well a hundred or a thousand years hence as to-day; and there is much similar work yet to be done.

The present season, more than half of the stone wall which bounded the highway on two sides of the farm has been carried gratuitously to fill a low place in the highway, and make it possible for a team to haul a full load where only a part of a load could be hauled before. Removing such brush and brier-covered old walls not only adds much to the beauty and park-like appearance of a country-place, but it also makes a very marked difference in the cost of working and manuring the adjoining lands, while it increases to a considerable extent the available area. I have alluded to the wastefulness of carrying unproductive property, and paying its interest and taxes; but I fear, that, as a people, we are paying a self-imposed tax upon our property which few of us have begun to realize. I refer, of course, to the cost of maintaining, at an enormous annual expense, our farm and street fences. We have fenced out our neighbors' cattle, our neighbors' chickens, and our neighbors' children, until we are all in imminent danger of forgetting what the rights of neighbors are. The cattle-drover and the man who pastures the highway seem to have little sympathy for the villager who leaves the gate ajar; and the small boy who is nimble enough to scale the orchard-fence, and retire with well-filled pockets, is by no means a bad fellow in the eyes of those who wait outside to divide the spoils.

It is said that good fences make good neighbors, which is true, if those fences surround lands that are to be used as permanent pasture; but I believe the best neighbors live in those towns and villages where all fences, except those around pastures, have by mutual consent been discarded. In my estimation, the moral effect of a high board fence going up between the little quarter-acre lots used as village homes is any thing but good.

I have, perhaps, as many sorts of neighbors to deal with as any average farmer; but I have no neighbor that is not a better neighbor now than before I took away all my gates and fences along the line of the highway, and rendered my whole farm as open as a village common.

Nine-tenths of all the fences in use are but the relics of feudal ages, when cities were walled, and individuals made their homes in castles. Our fence laws are based upon a correct principle, which is, that the owner of cattle, horses, sheep, swine, and poultry, shall restrain and prevent such animals from injuring the person or property of others; but the customs of our people would indicate that it is the duty of each to fence, not his own cattle in, but his neighbors' cattle out, and that any neglect in this direction is a risk he runs at his own peril. And so we go on, year after year, building expensive fences of stone, iron, and wood. I wish I could convey to you some faint conception of the enormous tax we as a nation have imposed upon ourselves by attempting, against all authority of law, to fence our neighbors and their cattle and other animals out. If I tell you that the fences built in the United States have, according to the best authority, required an estimated expenditure of the sum of two billions of dollars, you may be able to remember the figures, but you cannot readily comprehend their significance.

Two billion dollars represents a good deal of hard work — a great many hours spent in hot weather and cold weather splitting rails, sawing boards, cutting and setting posts, digging, hauling, and lifting stones — and a great deal of house work, — boiling, baking, washing, and mending for the men and boys who have spent a considerable share of their lives in building these fences.

Do you know how long it would take one of you to count a million of dollars? Supposing you are able to pick up and count correctly one dollar every second, and should count steadily ten hours per day for a whole month of working-days, you would still have dollars enough uncounted to keep you busy two Sundays; and should you continue counting at the same rate, day after day, week after week, and month after month, for fifty years, you would not have counted one-third the cost of the fences which have been built, and are now standing, in the United States. I have not been able to examine thoroughly the census returns for the year 1880; but if the ratio of increase in the value of fences, animals, and crops, has been maintained since the census of 1870, then the figures will read something like this:—

Value of live animals, including horses, mules, cattle, sheep, and swine	$1,942,800,000
Value of the fences	2,000,000,000
Value of the annual farm and garden crops grown .	2,820,000,000

I have shown you how utterly impossible it is for one to comprehend the full significance of these large numbers. Let us reduce them by cutting off the seven right-hand figures, retaining, however, their relative proportions. The statement will now read like this. It requires on an average, throughout the whole of these United States, two dollars' worth of permanent fence to keep one dollar and ninety-four cents' worth of live animals from eating, trampling, and destroying two dollars and eighty-two cents' worth of farm and garden products. With such a standard of individual and political economy, is it any thing to wonder at, that a great many men and women in this country work very hard, and have very little to show for it at the end of the year? If political economy is a study too deep to be introduced into our common schools, then is it not high time that the State gave its support to at least one agricultural college where farmers' sons can be instructed in the relation and bearing of such figures?

We laugh at the simplicity of the Chinese, who built their single line of stone wall on a border of their territory; but I fear we are going to make a future generation smile or groan at our foolishness in covering over the face of the whole country with walls and fences like the lines on a checker-board. You may say that these fences are to be viewed in the light of permanent improvements. I cannot accept the proposition. The tendency of the age is to render, sooner or later, nine-tenths of these fences as useless as the Chinese wall, and a public nuisance to which that wonderful piece of masonry is no comparison. It has cost very nearly as much to get rid of the stone walls on the cultivated portion of Pine Hedge Farm as the original cost of building them. You may say that these fences are a work of the past, and are not a burden to this generation. Let us see about that. Mr. Orange Judd, about two years ago, published in "The American Agriculturist" an estimate of the present *annual* fence tax upon the people of this country, and found, that, including cost of repairs and rebuilding, together with the interest and taxes on the same, this annual outlay represents a sum that would be sufficient to pay all the cost of our army, navy, and general government expenses (including pensions), and leave enough balance to pay every cent of the interest on our national debt. This, remember, is our yearly payment, and was estimated when the rate of interest on the public debt was much greater than it is now. No American citizen can afford to excuse frauds, or overlook corruption among government officials; but what comparison do the losses in this direction bear to the self-imposed burdens growing out of this old custom of fencing our neighbor and our neighbor's cattle out? The custom requires millions to build and support fences, who have no animals to restrain. Let us think of this matter seriously, take it to the meetings of the farmers' club, and see what can be done towards lifting this burden from our shoulders and the shoulders of those who will follow us.

In barbarous countries, animals run at large, and men respect no bounds. A civilized people can afford few fences.

The man who turns his cattle at large, to roam over the fields of his neighbors, may consider himself civilized; but the act is certainly very uncivil.

Cutting food in the fields, and feeding it in stables, prevents all waste from tramping of feet, the defilement inseparable from pasturing, the loss of food from lands under-fed, and the greater loss from insufficient food in seasons of drought. Field-crops, green or dry, judiciously fed, are consumed with little or no waste: while the farmer who adopts this method insures himself, to a considerable degree, against risks (such as bloat from over-feeding, as where cattle are turned into fields of rank clover); against injuries to the udder and teats of cows roaming in rough bush-pastures, the over-heating of animals in excessively hot weather (a common source of trouble in the dairy-room), injuries from flies and other insects, which are a source of constant torment to cattle at pasture; and also against sudden or severe changes of weather.

He will also find that manure collected at the stable, and carted to the best tillage-land, will bring him a far greater return than if dropped among coarse weeds and worthless bushes, or left to dry upon the surface of the very best pasture.

Good pasture, when it can be had, is unexcelled as food for cattle; but the season for the best pasture-feed is very short, especially in unfavorable years. After-feed in mowing-fields can rarely be pastured with profit, where the mowing-machine can run unobstructedly; certainly not if the cost of fencing is taken into the account.

Growing forage crops as a specialty will enable farmers to double or quadruple their stock, or divide and subdivide their farms. It will enable a State to increase its farm-stock and its rural population several fold.

A denser rural population will improve the social character, and increase the political influence, of country towns. The system well carried out will greatly diminish the cost of ordinary operations, while the net profits will be increased.

The difference between the cost of ploughing, cultivating, and harvesting, in large or small fields, may make all the difference between profit or loss.

At Pine Hedge Farm the plough can now turn furrows sixty rods in length; and whether using the plough, harrow, or cultivator, a day's work in the field always equals two days spent in the small garden-patch.

I cannot leave this subject without alluding to the economy of having good tools for working large, smooth fields. The production of forage crops as a specialty is best adapted to plain, easily-worked land, such as largely prevails in this section of the State; and no one should expect the best results, unless he first puts his land into good condition for running the improved modern implements of tillage. The swivel-plough will leave a smooth, level surface, requiring neither cross-ploughing nor cross-harrowing to fit it for the reception of the seed. The disk harrow will enable one to put upon a recently-turned sod any crop which would formerly have been considered only adapted to an old cultivated field. The machines for sowing grain and grass-seed will do in an hour work that without them would require several hours of hand-labor, while the machines leave the seed much more evenly scattered.

The smoothing-harrow, with its seventy-two fine steel teeth sweeping a breadth of ten feet, will cover the seed; while the iron roller, to follow, will settle the small stones, and smooth the surface so quickly, that one accustomed only to the old-fashioned tools and methods would almost doubt if he had really been at work.

I will call your attention to but one other point. I know that some of you have mentally asked the question, Where is the manure coming from to dress all these acres kept so constantly under the plough?

I may say, that, for several years past, I have made it a rule to apply a dressing for every crop put in, whether it is once, twice, or three times in a year. That portion of the farm lying near the stables is manured chiefly with animal manure; while that at a greater distance is dressed with purchased fertilizers solely. I was once prejudiced against purchased fertilizers, because they appeared unreliable; but since the manufacturers have learned their business better, and the State has set a guard over their operations, so that it has become possible to buy honest fertilizers that are made and sold upon business principles, as other commodities are made and sold, I have come to consider the artificially-prepared, concentrated fertilizer the powerful lever by which the intelligent farmers are going to be able to completely upset and revolutionize the prevailing sentiment concerning New-England agriculture.

When the laws which govern plant-nutrition are as fully known and observed as they should be, I doubt not that our Massachusetts farms will bear constant cultivation and cropping, without recourse to outside influences; but I know that even now a run-down farm can be speedily and economically brought up to a productive condition by using its own resources, supplemented by well-selected commercial fertilizers.

It is claimed by some, that the growing and turning-under of green crops is the cheapest method of improving a run-down farm; but, where forage crops are in such demand for cattle-food as they are in Massachusetts, it does not appear to be the better way.

If the ideas I have brought to your attention this afternoon are not visionary, but practicable, and worthy of extended consideration or general adoption, then I think we may look forward to the future agriculture of New England with feelings full of hope and full of gladness.

QUESTION. I should like to ask the gentleman if his neighbors have discontinued their fences on the street.

Mr. CHEEVER. Not all of them, but they are working that way. There are no cattle going on the street now where I live.

QUESTION. What would you do if you lived on a street or road where, in the fall of the year, droves of cattle to the number of five hundred were driven by every week or two?

Mr. CHEEVER. Well, I will admit, that, if I had been so situated, I do not know but I should have waited for somebody else to have pioneered in this work of creating public sentiment against fences. But I know this, — that drovers are more bothered now in driving their cattle through villages, in passing into Brighton or out, where there are fences and open gates, than they would be if there were no fences and no gates. An animal dodges in at a gate; and, having got in, the herd going on, the animal keeps along with the herd, inside of the fence; and then there is a time in getting him back again with a dog, a boy, and a man. It takes a long time, and it is a great bother to the drovers. Cattle, like partridges and rabbits, and all animals, will follow paths naturally. You can drive a herd of cattle across any pasture or common where there is a cart-path; or you can lead the master-cow almost anywhere, and all the rest will follow; but, if you drive a herd of cattle along a highway where there is a gate open occasionally, some will very likely dodge in.

Mr. ——. Some years ago we took away about forty rods of fence on our farm, and left it two or three years. In the fall of the year we are in the habit of having very large droves of cattle come through our place; and the drovers cursed me so for leaving my land open, that I finally concluded to put up my fence.

Mr. CHEEVER. The law obliges the drover to have sufficient attendants to take care of his herds; but if, having a sufficient number, an accidental step is taken into any person's land, the drover is not responsible. We have depended upon fences so long, that we imagine we can turn a drove of cattle loose into the street, however wild they may be, and start them right off in a drove, when, if they were horses, we should hitch them together. We would not attempt to drive horses as we drive cattle. These are matters of habit.

Dr. STURTEVANT. A drove of cattle passes my place once a week regularly. They had got into the habit of breaking in, and running over my fields. I simply prosecuted the drover, and got judgment against him, and told him I should hold that judgment over him, and, if his cattle troubled me again, I would enforce it. Since then there has not been an animal in my field.

Mr. CHEEVER. When I took down my fence, I had good reason for it. I had a neighbor who persisted in feeding his horse in the highway directly opposite where I live, and I used to drive him out when he got into my mowing. One day, when I was driving him home, I met my neighbor, who was not in a very good condition to feel well, and he made unpleasant remarks. I did not make any reply; but I have not had a gate or bar up since, and, as I said in my paper, I have not a neighbor who is not a better neighbor now than before I removed my fences. I have had no trouble with the neighbor to whom I have referred since. He kept poultry, and I feared a little trouble from his hens; but within two or three years Massachusetts has passed a law making the owner of hens liable if they damage others. The complaining party, after giving due notice, can bring an action against a man for not restraining his hens. As this neighbor lives directly opposite to me, and as I own the land nearly up to the sill of his barn, and have given him permission to drive across my land to get his manure out, I did not want to talk to him about hens, because it is not a pleasant thing to talk about. I planted a strawberry-bed as close up to the line as I conveniently could, and I have let him have a good share of the strawberries, and his hens are shut up. If we can see that our fences can be dispensed with, you see how great a tax we are relieved from. The little details each one must settle for himself, according to his own particular conditions. If any man prefers to keep a road-fence, he has a perfect right to do so. I had one night four colts in a field of oats; but, when I came to figure up the damage, I found that it did not amount to more than two dollars, including the time spent in catching the colts, and the cost of keeping them. The owner was perfectly satisfied with my bill, and so was I. That is all the damage I have had in five years.

QUESTION. Will you tell us how you got rid of all those walls? What is the best way?

Mr. CHEEVER. There was a swamp-lot near by, from which muck had been carried for two generations into the barnyard for compost; and it left a ditch fifteen or twenty feet wide, full of water at times, and made a harbor for muskrats. A ditch was dug around the swamp, filled with stones, and covered over, which drained the border, and gave us a chance to drive on the meadow a little nearer the main ditch we wished to fill. Then another ditch, that ran in towards the centre, was cleaned out in a dry time, and the material thrown on to the bank, shovelled back, and allowed to lie there until it dried in the atmosphere sufficiently to allow driving on with a light team. We then drew in stone, and filled the ditch. Then we commenced the other side of it, and dug another ditch of the same size, just far enough off to leave a bank to keep the water from flowing in, throwing the mud, which is from four to six feet deep, on top of the stones. That left another large hole to put more stones in. Those walls were gradually disposed of in that way. That kind of work was carried on, until there is not room now to dig another ditch. That is one way of getting rid of stones, and it is a good way. This sample of millet grew on that ground, after a good crop of rye, where I have sat evenings, and shot musquash swimming in the water.

QUESTION. How deep did you put the soil on?

Mr. CHEEVER. From one foot to nearly two feet. Eighteen inches to twenty inches is what I would recommend in meadow-land, to cover small stones. The first stones that were drawn were covered too shallow, and the plough touches them occasionally.

QUESTION. What was the whole expense?

Mr. CHEEVER. It took about all the leisure time of the regular help on the farm for some thirty years to clear off all those walls, get out the rocks, build the drains, and make the farm fit to till.

QUESTION. How much would it have cost if you had had to hire it done?

Mr. CHEEVER. I do not know. The farm is my home. I think considerable of it. Those improvements were our knitting-work. We need a certain amount of help to do our regular farm-work; and there are some leisure days and odd hours, and days when some farmers would go to the store to smoke, and talk politics, when we have been doing that job. Looking at it in that light, it has not been very expensive.

Mr. SHAW. Suppose you had not such convenient meadows to put your stones in, what would you do with them?

Mr. CHEEVER. If land needs underdraining, a great many can be used to build drains. I think stones can often be put in drains better than anywhere else; and it is a profitable way to dispose of them.

Mr. SHAW. Suppose your farm does not need draining?

Mr. CHEEVER. Generally you do not have many stones on farms which do not need draining. On light, sandy land, stones are not often abundant.

Mr. CUSHING. I have been deeply interested in the paper which has been read. I would like to know if Mr. Cheever has kept books, so that he can tell us any thing of the relative cost of keeping a cow on a farm like mine, where it now takes about three or four acres to keep a cow, instead of one, as he has told us, — whether it would be a matter of economy for me to throw out to common seventy-five acres, and try to keep my cows on twenty-five acres. I believe my brother milk-producers in Plymouth County would share my interest in that question.

Mr. CHEEVER. I have no hesitation in saying that good farming pays better than poor. If you want to make the most money from every thing, and make your milk in the cheapest way, I believe that the method I have spoken of this afternoon, gradually adopted, — gradually enough to understand it, and become acquainted with it, — will bring the cost of your milk at a lower figure and with more profit than you can get it by depending upon pastures in the old way, feeding mowings, and following along in the old New-England methods of the past. That is my conviction.

QUESTION. Will you give these gentlemen some idea of the expense of running your farm?

Mr. CHEEVER. That is a difficult thing for me to do. I have employed this season two men constantly, and have not hired any extra help more than half a dozen days. By double and tripple cropping I cultivate, as you have seen, sixty-six acres. We have ploughed twenty-six acres once, and more than half of it twice. I will say that I have done nearly all the ploughing myself. I always plough all my greensward myself, and this season have, with a subsoil plough and three horses abreast, gone over about one-fourth of the farm. I have done all my mowing with the machine, and most of my raking.

QUESTION. You carry on your farm with your own hands and two hired men?

Mr. CHEEVER. Yes, sir. My son, who was at school, was at home on his vacation, and he helped me a little during haying; but his hands were soft. He had a great deal of studying to do, and I could hardly count it much. My editorial work, and calls from friends, take a great deal of my time; but two men, with what work I could do, have been all I have needed. We do not have to travel half a mile for every load of manure. One great difficulty with large farms is, that too much travel is required in getting to work.

QUESTION. You spoke of using fertilizers on portions of your farm that are distant from the house: are we to understand that you used no manure on those portions, except commercial fertilizers?

Mr. CHEEVER. On a certain portion of my land I have used fertilizers only for the past six years; and it has been cropped once every year, and twice a year most of the time.

QUESTION. Do you find your crops as good where you use the fertilizers as you do where you use manure?

Mr. CHEEVER. I do. And every acre so treated has been growing richer and stronger under this system. To test the matter, and see whether the fertilizers had all been used up, I sowed half a dozen acres, the past season, to rye and oats, without applying any fertilizer at the time, and in both cases got a full crop; but of course I could not repeat such an experiment often with success.

QUESTION. I would like to ask you if you would sow the land with grass, that you have used fertilizers upon for two years in succession, expecting to get good crops for two or three years.

Mr. CHEEVER. I should never sow land down to grass without manuring with something at the time.

QUESTION. With something besides fertilizers?

Mr. CHEEVER. No, sir. I am not afraid to depend upon bone, or other good fertilizers, wholly.

Mr. KING. I have used fertilizers in seeding down grassland. I put on from twenty to twenty-five dollars' worth per acre; and my first crop is heavy. I know of one field that has been in grass for four years, on one side of which a fertilizer was used when it was seeded down, and on the other side manure, only about four cords to the acre; and there has been no second crop raised on the side where the fertilizer was put when the land was seeded down. Previously the land had been manured alike. That is one instance where the fertilizer has failed with me. Still, I believe in using fertilizers; and with us it has brought manure down from ten dollars per cord to five dollars, and we have got a great advantage in that direction. But I am satisfied that there are certain crops where I have been as successful in getting as good a yield with the use of fertilizers as I could with almost any kind of manure, say eight cords per acre. I live in an onion neighborhood. We raise a great many onions in a good onion year. But I have my doubts about the use of fertilizers on grassland. I don't think the strength remains in the land. I think it nearly all, if not all, goes out in one year. I am aware that people differ; and all I know about it is from my own experience.

Mr. CHEEVER. I cannot tell what the future may bring: the past has been satisfactory.

Mr. KING. I understand you have used it year after year?

Mr. CHEEVER. For six years.

Mr. KING. I understand you do not sow your land down to grass: you keep it up all the time?

Mr. CHEEVER. I have sowed down six acres this year, and used largely bone.

QUESTION. Do you think subsoiling pays? and how does it compare with using clover as a deep-rooted crop for the same purpose?

Mr. CHEEVER. I do not know how strong the clover-root is; but I think it would not have got down very much in some of my soil if I had not subsoiled it. My subsoil plough is a steel plough, with a colter, but no mould-board.

It has a lifter that runs under the ground, some four inches wide, and it is a good pull for three horses. It lifts the ground, and starts up the cobble-stones, which for fifty years have just caught the point of the ordinary plough. I can get a good deep soil by using a subsoil plough.

QUESTION. How deep do you run a subsoil plough?

Mr. CHEEVER. One foot deep. In my method of operation, it does not cost any thing extra. I never subsoil sward-land: that would require two teams, or unhitching from one plough, and hitching on to the other. I subsoil after corn, where I am going to sow oats in the spring. I want to lighten the ground up. I can do that just as cheaply with the subsoil plough as with an ordinary plough. Then I put on an Everett & Small cultivator, with three teeth, that runs as deep as a plough if you will let it down, and do the work a great deal faster. I use that instead of any other plough; and really it does not cost me any thing extra to subsoil, when I can get about it, and have every thing ready.

QUESTION. If you were raising grass exclusively, do you think it would pay to subsoil?

Mr. CHEEVER. It does not cost any thing extra as I do it; but it does pay to put a piece of land into condition, so that you can plough it all eight inches deep.

The CHAIRMAN. I believe in the doctrine that the lecturer has advanced with regard to stone walls; but it would impose an onerous tax on some of us. I have a farm of fifty acres adjoining my friend Russell here; and on it there are miles of stone wall from six to eight feet high, and they are from four to thirty-five feet wide [laughter]. I don't wonder you laugh and doubt; but here is my friend, who saw them a good while before I did. I did not build the walls: you understand that. You could drive a four-horse coach on the top of the wall: it is just as level as this floor. It would be imposing too great a burden upon me to make me take those walls off: I never should do it. I agree with Mr. Cheever, that it would be desirable to have the thing done; but I do not know how we are going to do it. It is astonishing to look at the walls on my place. I do not believe that it was good husbandry to build them; but I have got them, and I do not know how to get rid of them. My friend here will not take them off: he has enough of his own. He has been at work all the fall getting off some of his old wall that is not more than three feet wide, and putting the stones under ground. I should be glad to give my walls to him, if he would take them off; but he won't do it, and I certainly will not do it. I believe in the doctrine of no fences.

I will not pursue that subject any farther, because I want to call up the subject of wheat, which has been alluded to. If Mr. Grinnell is in the house — he knows something about wheat; and I want him to give some facts, and some of his experiments.

Mr. GRINNELL (of Greenfield). I am afraid I shall not be able to speak with any definiteness, or with such particularity as you should have; for, as has been remarked by more than one of our speakers, accurate statements are what we want. This guessing at measurements, or giving estimates, is not what we should have.

The matter of growing wheat has interested me in common with other farmers in Franklin County, which is the first agricultural county in the State, acre for acre — with due deference to the Old Colony. I am happy and proud to say that Franklin County raises more wheat than all the rest of Massachusetts; and I was also happy to find that there was a missionary at work down here, in the popular president of this county society, who has been urging the growing of wheat. I believe that wheat may be grown with profit, to a certain extent. Not, by any means, that I would advise any man, or wish any man, to take wheat as his main crop; but our farming in New England, our farming in Massachusetts, is eminently a mixed farming. That is the only way in which we can well succeed. We have, perhaps, some crops rather more special than others; but we must take every thing. We make our butter, we grow our potatoes, our corn (mostly), our rye; and it is, I think, advisable that almost every man should grow some wheat. Every agricultural community — I tell you it is an axiom upon which you may depend — should raise at least a very considerable portion of the materials which are to supply its own people. It is not to be expected, that, with our large population of non-producers, we should, on our own territory, grow wheat enough to support them all; but a certain amount might be profitably grown by many, very many, farmers.

It is difficult to say why it has not been done. I have asked hundreds of times perhaps, at different farmers' institutes where I have been, "Do you raise any wheat here on your farms?" — "Well, no." — "Why not?" Well, the answer will be pretty much like this: "Grandfather tried it, and he never had any luck; and father always said he could never raise any wheat on our land; and I have never tried it." That is about all the answer I have ever been able to get, that the man's father or grandfather tried it, and did not meet with any success. I believe, that, owing to climatic changes, we can have better success in growing wheat now than formerly. You know that in 1838 the Massachusetts Legislature offered a premium for the largest amount of wheat raised on a farm. The following year Massachusetts raised a hundred and fifty-seven thousand bushels of wheat; and for two years it was largely grown. But it must be confessed that it was not at that time successful as a crop. There were many things which interfered with its growth, — there were weevils, there were blights and rusts, there were insects. At the present time we seem to be exempt from these difficulties in this part of the country. I hear no complaint in my own county, or at any of the institutes I have visited, of blight; I hear no complaint of the weevil, the midge, or Hessian fly. Those were the three evils that afflicted farmers in former years. There is occasionally smut, and sometimes rust; but Massachusetts has continued to grow, from 1840 down to the present time, a larger quantity of wheat to the acre than any other State in the Union, and Franklin County shows a greater acreage of wheat than any other county in Massachusetts. You can grow thirty bushels of wheat to the acre just as well as fifteen bushels of rye; and it is a better crop, if you are going to seed down with grain, than rye or oats; and from it you can have the very best flour, if you have mills in your vicinity, and, if not, it will pay to take your wheat a dozen or fifteen miles to a good mill. You will get from your thirty bushels of wheat six barrels of flour, six hundred pounds of middlings, and the straw. The straw is not so good as rye-straw; but you can get about ten dollars' worth of straw at any going price, and make it a considerably more profitable crop than rye.

I know a good many of our very best farmers who never had a barrel of flour in their families, except what they raised themselves. I know one farmer in Northfield, who has been on the State Board, who raises a few acres of wheat every year, and makes his own flour; who never has had less than twenty-five bushels to the acre; who never has lost a crop entirely; and not over three times in ten years has his crop been what you would call a partial failure. I know of another farmer, recently president of our society, who raised ninety-five bushels of wheat from two acres of land in 1880; and the past year he had four acres from which he got one hundred and sixty-eight bushels of the very best wheat. That was land which had borne tobacco. Of course, it was highly manured, thoroughly cultivated, and, from the care and clean cultivation which tobacco requires, the land was in perfect order. There was no foul stuff among it, but a very fine stand of wheat, which sold for two dollars a bushel.

QUESTION. Was it spring wheat, or winter wheat?

MR. GRINNELL. This was winter wheat. Winter wheat is more generally sown with us than spring wheat. It has been regarded as a better quality of wheat. I know one of our best old farmers whom I have seen every winter coming down through the village from the hills west of the town with his horse and sleigh and a freight of wheat, which he was carrying down eight or ten miles to a flouring-mill. He has done that for fifty years. He never has failed to raise a crop of spring wheat.

QUESTION. What do you consider the best soil for spring wheat?

MR. GRINNELL. I have grown over forty bushels of wheat, with plenty of fertilizer, on a sandy loam. Either spring or winter wheat requires a good, strong soil. The trouble with farmers in raising wheat has been, that they have not paid sufficient attention to the preparation of the land, and to the manuring. They would sow their wheat as they would rye, and expect it to grow without manure. Now, I undertake to say that the doctrine which Mr. Cheever has advocated here, and which I have always practised on, is the right one, — never to attempt to take a crop from land without previously giving it sufficient nutriment to feed it well. I grow two or three crops of some things on the same land the same year; but I never put a second crop or a third crop on to land without giving it something, and usually some special fertilizer. I think it is robbery, and a fraud upon the plant, to attempt to raise it upon the *residuum* left from the crop of the previous year or of one earlier in the season. Wheat requires fine tilth and plenty of fertilizers. I use a great deal of plaster (a gypsum) on almost every thing. I find it excellent for pastures, and for rye and wheat. There is nothing that will make clover grow so well.

QUESTION. How much plaster to the acre?

Mr. GRINNELL. I suppose that two hundred pounds is as good as more.

QUESTION. I would like to inquire if an acre of land in a state of fertility sufficient to produce thirty bushels of wheat would not be in a condition to produce certainly three tons of good English hay worth, at the present price, about twenty-five dollars a ton, with a less amount of labor than would be required to produce the wheat and get it to market; making a sure crop for us, that is always in demand in the good old Bay State.

Mr. GRINNELL. In answer to that, I would say that I am not supposing that you put all your land into grass. I am supposing that you have a rotation, or, if not rotation, at least a change of crops. A piece of land that would produce thirty bushels of wheat to the acre would produce three tons to the acre of grass; but then, you could not put all your land into grass.

Mr. ——. No, sir; but if we have a sufficient number of crops to rotate at the present time, and crops that are certainly adapted to our soil, especially in Plymouth County, would it be wise for us to go into a crop where there is uncertainty?

Mr. GRINNELL. Did you ever try it?

Mr. ——. I have never tried it, from the fact that I never had a neighbor or friend who has had success in wheat-growing, and from the fact that there are so many crops which we can produce that are adapted to this soil and climate. I have never felt confidence enough to embark in an enterprise about the success of which there was any doubt.

Mr. GRINNELL. Your president, Mr. Lane, thinks that wheat can be grown in Plymouth County. Suppose you should try an acre.

Mr. ——. It would cost more than it comes to.

QUESTION. In your opinion, does it follow, if you have some good wheat-land in your county, that wheat can be raised to advantage all over the State?

Mr. GRINNELL. I do not think there is such great diversity of soil in different portions of this State, that you could not find soil here upon which you could raise wheat, as well as in Franklin County. I do not look for wheat-land as they do, perhaps, in England, or in New York, where they raise great crops. We can raise wheat on any good land which has been well tilled and well manured. The best crops have been raised on what has been called first-rate grassland,—often where tobacco has been raised, and wheat followed.

Mr. SESSIONS. What made me ask that question was, that some years ago I tried to raise wheat,—tried it for several years,—and was not successful. I thought I would use land that was a little better than I used for my other crops, so as to get some good wheat; and it came out a failure.

Mr. GRINNELL. I think that much more might be grown than is supposed. At any rate, I think it is well worth trying.

Mr. SESSIONS. An old man in the western part of the State, in the county of Franklin, who had always raised wheat, said to me at one time, that, in order to have a successful crop of wheat, it ought to be sown upon land where it would catch every breeze that came. I think the best wheat that is grown in Franklin County is grown upon the high lands in the towns of Heath, Rowe, and those hilly towns where, perhaps, the land slopes to the south, and yet it gets every breeze that comes from the north. That, perhaps, may have had an effect.

The CHAIRMAN. A pertinent question has been asked here,—what it cost to move those stones. I cannot tell you that; but here is my friend, the secretary, upon whom I depend for all the statistics I want. Perhaps he can answer that question; and, after you get that out of him, you can ask him about wheat; for he has some facts in relation to that matter which it is desirable should be presented at this time.

Mr. RUSSELL. The proper function of the secretary of the State Board is what the woman said was best about children, — that they were to be seen, and not heard.

The CHAIRMAN. But they are to *mind*.

Mr. RUSSELL. Yes, and mind. That is just what I was coming to. In regard to the matter of wheat: I was particularly struck this fall with something that occurred in the course of my experience; and there are several persons here who have heard me allude to it at the institutes. At the New-England fair, they had, among other attractions, Gen. Sherman. Gen. Sherman is from the West, and his ideas of farming are largely drawn from his observation of Western farms. He was very patronizing and kind to us. He patted us on the head, and wondered that we should think of farming in Massachusetts at all; thought it was to our credit that we undertook to cultivate our shallow, cold, and stony soil. He alluded to it as a very praiseworthy and excellent attempt to struggle against the forces of nature. Then he went on to speak of a farm that he had recently visited, and made us unhappy by drawing a comparison between what we got and what they took from the great Dalrymple Farm in Dakota. He said it was forty-five miles long. It was a good deal like that farm that was so long, and ran through so many counties, that the Western man boasted, that, when they mortgaged it, the mortgage became due at one end before they could get it recorded at the other. Well, Gen. Sherman told us of those immense farms, and the vast quantity of wheat in the aggregate that was raised on them. I went away feeling rather sorry that I was the secretary of the Board of Agriculture of such an unfortunate country as Massachusetts; but a few days after, I attended a little town fair in Royalston, — one of the north-western towns of Worcester County that had been stranded upon the hills by the railroads, that have left it one side, — and, while I was looking at the products of that town, I saw a sample of spring wheat, — as handsome wheat as ever the Department of Agriculture in Massachusetts sent out as specimen-seed, — and, while I talked with the man who raised it, I reckoned the value of it. He got thirty-one bushels to the acre; which is about the average yield, I believe, in Franklin County. When I told him what I had reckoned up as his profit on it, "Why," said he, "you have not got my profit within twelve dollars to the acre." Said I, "How is that?" — "Why," said he, "you have only given me credit for eight dollars a ton for the straw, and I get twenty dollars a ton for every ton of straw I take down to Winchendon, where they use it to pack tubs and pails." I went home feeling a little more encouraged about Massachusetts agriculture, although on a small scale. I had hardly got into my library, when I saw an account of the productions of the great Dalrymple Farm in Dakota. They had twenty bushels of wheat to the acre on the virgin soil of Dakota; and, when they got it to Buffalo, it netted them almost a dollar a bushel. I was thankful that I lived in a country, where, if we could not get at least forty dollars net to the acre, we should feel it was poor business. My neighbor up in Royalston was getting more money for the wastage of his crop than they were getting for the whole production of an acre of land in Dakota. I thought, furthermore, of this great Dalrymple Farm forty-five miles long, or so, without a schoolhouse within a thousand miles of it, cultivated, — *un*cultivated I mean, — cropped, or, rather, robbed, by a lot of savages; for we know perfectly well that men living without homes or families, without any women in the whole country to keep them straight, are no better than savages. I don't suppose there has been a clean shirt or a fine-toothed comb there within a year.

But to come to the matter of walls: I bought a neighboring strip of land this year, partly because it was good land, and partly because there was a lot of tumble-down wall between me and the property. Then the question was, how to get rid of it. I put it in the ground. The way to do it — the way I would do it — is to contract with somebody to dig a ditch three feet and a half deep and three feet and a half wide, and then put the wall into it, setting the larger stones together, backing them with the next largest ones, and then throwing the small ones in to within about a foot and a half of the top. I think I filled my ditch to within a foot of the top. I did not dig it quite deep enough. I would rather have the stones eighteen inches under ground. You can contract with smart men to dig such a ditch as that of mine for about a dollar and a half a rod; and putting the stone in ought not to cost more than sixty or seventy cents a rod more. That is a little over two dollars a rod for sinking a wall in the ground, and making a good drain in the place of the old wall. I believe that it is worth every cent that it cost. That is all I have to say about it, except this: that I have been sinking walls for several years; and I find that it pays me in under-drainage, as well as gets rid of the eyesore of the wall.

The **Chairman**. Now the time has passed which was assigned to another subject. I have great confidence in doctors; and we have a paper coming from Dr. Faxon, who lives up in the land where they grow presidents (in Quincy), who proposes to tell us how to make silos, and preserve ensilage, so that we can all do it.

HOW THE SILO MAY BE MADE AVAILABLE BY ANY FARMER.

BY DR. W. L. FAXON.

To enable a farmer to decide for himself whether *any* process of preserving fodder is a good one, it is requisite that he should possess some knowledge of the constituents of the plant he intends to preserve, and some knowledge of the changes fodder undergoes in the process of curing or preserving; otherwise he cannot tell, for himself, what he may expect as a result of the feeding of it, and consequently what the result of his labor will be. Until within quite a small number of years, it was, as a general thing, the custom in this section to wait until July before beginning haying; for it was supposed the grass became riper, and therefore better fitted for fodder. We know now that this was a mistake, and that early-cut fodder contains more nutriment; for we wish to obtain the nutriment in the stalk, and not in the seed. Then, too, it was customary to cut the grass when the dew was on it, partly, no doubt, because it cut easier; and often a whole day was consumed in drying the water out of the grass, three days being considered none too long a time to properly make the hay. Now, having learned more about grass, and what it is good for, we wait until the dew is off before we cut it; and, with the ordinary farm machinery, the hay is ready to house the afternoon of the day it is cut.

So great a change has been made in this simple thing, because we know both *why* we should do thus or so, and *how* we should do it. I make these preliminary remarks about our method of making hay to show you that a *system* is one thing; a *method*, another.

Now, there is presented to us a system of storing fodder, which, some of its advocates claim, can be applied almost universally as regards time and season, and kinds of fodder to be acted upon by it. This system is not new to the world, though it is new to America. It has been in operation in Europe, to some limited extent, for a number of years, and with plants well adapted to be acted on by the silo; and under certain circumstances it has, doubtless, many valuable features. This system of storing or preserving fodder can in no sense be called curing it; for curing means preservation in such a manner that no injury can result to the product from changes within itself. The silo system preserves fodder temporarily, but with all the possibilities of destruction from internal changes retained.

Still there is much that is desirable in this system of preserving fodder, if it be rightly applied, the proper season of the year selected to put it in operation, and the right kinds of plants chosen for treatment. Green fodder can be kept for a few months in a condition very suitable for animal food, in a succulent condition too, and within a pit or out of it; and the favor or disfavor the silo system will meet with depends upon a proper understanding of the reason *why* it keeps. So far as my own experiments extend, the results were as favorable as could have been expected. Our experiment with black-grass from the salt-marsh gave a particularly sweet and toothsome fodder. This was because the fodder was fed out when the process of decomposition had reached the saccharine stage, and all the bitter gums or starchy compounds were the most readily convertible into animal tissue or milk. This species of grass could have been easily dried, cured; but the product would not have been of equal value. The second experiment was with branch-grass, also from salt-marsh. This grass makes a good hay when dried; and, although it has some of the bitter properties of the black-grass, yet it is preferable to black-grass as a dry fodder. This lot was allowed to remain in the pit from August until the March following: and, although the cattle ate it, I could perceive no result attending its consumption, to convince me that I had gained any thing; in fact, I think there was a loss in nutritive materials. My third experiment was with green corn-fodder, planted in July, put into the pit in October, and fed out from Dec. 1, 1880, to March 15, 1881. In all, a period of five months elapsed while it was under ground. Although considerable acidity was developed by the internal changes, yet the results obtained from feeding it were such as to offset any loss experienced in the transformations that had taken place in its primary constituents.

These experiments were made with some of the poorer kinds of fodder; and, so far as I have been able to ascertain, the results obtained from pitting, green, the grasses that are rich in sugar, starch, or gums, have not been such as to warrant any one departing from the old system of curing grass.

If the silo is to come into general use, it must be as an adjuvant to the systems we now employ, and not as a substitute. It must be put in operation upon the right kind of farm-products, and at the right season of the year. Of coarse grasses, rushes, or other swamp products growing wild, we do not now make, nor is it probable we shall ever make, any use as fodder. If we do, the silo is particularly well adapted to them. As regards all the grasses we now use for hay, our sunny skies enable us to cure even the coarsest of them with all their feeding qualities unimpaired.

To understand *why* fodder keeps in a condition suitable for animal food in a silo, something must be understood of the process of decomposition, or rotting, and one must also have some knowledge of the composition of plants at different periods of their growth.

If we mow a lot of green grass, and put it in a heap, it rapidly heats; and after a few days it becomes sour, mouldy, and soon rots into a homogeneous mass, in which the shape and fibre of the grass is undistinguishable. To this rapid rotting two agents are necessary, — air and moisture. The less mature the grass, the more rapidly it rots when these two agents have access to it; and, if a pile of grass is loosely made, the plant contains moisture enough, and there is enough air mechanically retained, to complete the process. If we wait until the grass has nearly ripened its seed before we cut it, quite a large pile can be made; and, although air has free access to the heap, rotting takes place slowly, for the moisture is wanting in the grass itself; and, should water get in from the outside, decomposition is not rapid, for the stalk of the grass is chiefly woody fibre. The starch, sugar, and gums that made the green grass rot so rapidly have been expended in ripening the seed, and that is fitted to remain for years under ground without decay.

Now we wish to cut our grass green, and preserve it in a moist condition. If we make a pile of grass such as alluded to above, and the heating begins, there are two ways of proceeding if we wish to stop the process. One is summarily arresting it by opening the pile, and exposing all portions of the material to the light and air. The air and sun take out the moisture, and we make hay. If the pile is in suitable shape, size, and place, we compress it still more compactly together, and we make ensilage. By the former process, however, we have so changed the grass, that it is indestructible from any changes that will begin within itself: it has only to be protected from moisture to enable us to keep it as long as we wish. The grass is cured. By the latter process we have only excluded one of the agents needed for the *rapid* destruction of the plant; but we have left the moisture of composition, with which all processes of destruction are possible when working with the peculiarly organized compounds contained in the plant, and we have only *delayed* the decomposition.

As farmers looking for practical systems for preserving our fodder, and the simplest and easiest methods of applying such systems, let us consider the two methods of applying the silo to American farming. We know we can expel the air from a mass of green fodder so completely that it will keep from rotting for a number of months; but we cannot keep the constituents of the mass from changing. The change is constant; and the longer it is allowed to continue after a certain period of time, not yet clearly known, the less valuable the product becomes. We know, however, that among the changes are some of a beneficial character; so that within certain limits loss and gain may be nearly balanced. We can so select the substances to be treated in the silo, that, considering the season of the year when they are to be harvested, the uncertainty of drying the plants in the short and damp days of autumn, the desirability of having some succulent food for the cattle about to be taken from the pastures, the advantages shall more than balance the disadvantages. Knowing these things, we conclude the silo to be a valuable addition to our farm systems.

We have learned what I may call the mechanical chemistry of the silo; viz., that green fodder in mass keeps because the air is expelled from it, and that the only oxygen consumed in the metamorphoses is obtained from these metamorphoses themselves. We know that the only practical method of expelling the air is by pressure on the top of the mass, and that this pressure can best be applied by stones, sacks of sand or earth, — substances of great specific gravity, — rather than by screws.

There is no question as to the manner of compression; and, having settled that, we ask, How shall we mass the fodder? How shall we make the pit? Shall we make one at all? Most of those who have experimented with the system in Massachusetts have built tolerably expensive pits to keep the fodder in, thinking the circulation of air around the mass capable of causing it to rot, and, to insure close packing, have cut the fodder into very small pieces. I should maintain, that, though such pits may be desirable when the fodder is finely cut, still to keep it an air-tight pit is not necessary; for what air would obtain access to a mass of fodder through the sides of a pit, if it were boarded, or to the bottom, if the bottom be the uncovered ground, would not affect the result. We must not forget that the weight on the top keeps out the air.

This method of applying the system is efficient, and it has many advantages. The pit is kept in permanent form, and may require little work to keep in condition when once made. Such pits are expensive, and many farmers have not the money to pay for one. If, however, a farmer determines to cut his fodder into inch pieces, I shall advise him to build a silo that will last for years, and have it as near as possible to the place where the ensilage is to be eaten.

Now in regard to cutting the fodder. I think those who have advocated the cutting green corn-fodder to insure its keeping may not have thoroughly understood this part of the subject. I do not intend now to discuss all the points of the silo system, but shall only endeavor to show the *why* as distinct from the *how*. It is nót necessary to cut it to keep it; and there are some reasons why it should not be done.

Prudential considerations. -- The cost of cutting machinery is considerable; the work of filling the silo, when once the work is begun, must continue without intermission, except, say for a day; a large number of men are required to handle the fodder, and tramp the mass in the pit to keep it from heating too much, and rotting before the crop is fairly housed; and in many places power and labor may not be obtained. In regard to heating: this cannot be lightly considered or underrated. In cutting the fodder — I now speak of corn — into such small pieces, in the mashing to which much of it must be subjected the chances of rapid oxidation are increased many fold; for the points of contact with the air are a thousand times more than when the stalk is exposed to the air at the bottom only, where it was cut from the stump.

Another thing in regard to this heating: it is a true oxidation of the more easily destructible compounds, and does not resemble the changes taking place from catalysis: for, in the cutting and mashing, the silicious envelop — the air-tight and water-tight covering nature provided to keep destruction at bay — has been entirely destroyed; and changes that might have taken place at the expiration of weeks, possibly, have taken place at the earliest possible period.

We know that green corn-fodder can be left loosely in mass, uncut, for a length of time sufficient to deliver to acetous fermentation and utter destruction the same amount of fodder cut into inch pieces.

So far as the actual merits of this method of applying the silo system are in question, I am not convinced that it is the best.

But there is a side to this question of altogether a different range. We have in Massachusetts, everywhere in fact, one and two man farms. If these farms are to have any benefit of the silo system, there must be one and two man silos. If money were not wanting to build expensive pits, and purchase the cutting-machinery, the *labor* is wanting. We cannot make the farm to fit the silo: therefore we must make the silo to fit the farm. Can this be done? It can.

The only point to be considered in preserving the fodder is this, — weight on the top to expel the air, and to prevent the access of more. The air and water tight sides and bottom of the pit have nothing whatever to do with it: they are only the *form;* the weight is the *substance.* It is not necessary to cut the fodder into small pieces when it is massed. To secure close packing, it is only necessary to lay the fodder all one way; so that, when heating takes place from agencies at work *within* the stalk (which has been opened at the bottom only), and the envelop softens, the weight applied at the top will compact the stalks firmly together.

Common prudence would dictate such a manner of laying the stalks; for, by laying them in all directions, room is wasted, and spaces to retain air and gasses are created.

To secure a uniform settling of the mass, have the retaining-walls of the pit (no matter of what they are made) plumb, or, better still, inclining inward at the top one inch to six feet rise. To render the operation of filling the enclosure more easy, dig a short distance into the ground, more or less, according to the amount of fodder to be stored, and the location. The posts will thus be more easily kept plumb, and the dirt excavated is just where it is wanted, — to bank the sides, to keep them in position, and protect the mass from the frost. When these simple precautions have been taken, the pile may be made and tramped as well as two men can tramp it; and, if necessity requires, it may be left for a week, provided a small weight be placed atop.

If a week should intervene between the time of leaving one lot of fodder and beginning to put in another, no harm is done; for when the heating takes place, and the stalk softens, the mass will settle enough to exclude the air between the stalks, and the heating nearly ceases. When the whole mass is together, it may be covered with straw or old hay, and weight applied. If stone be used, half a ton to the square yard is the rule; if dirt, two feet is none too much.

This method of applying the silo system has some disadvantages, as well as the other. If the pit is in the field, distant from the barn — it is often bad weather when the farmer wishes to remove the ensilage, — working in the wet and cold is disagreeable. The ensilage must be cut down with a hay-knife, and carried to the place of feeding in quantities larger than one is obliged to remove from a pit when the fodder is cut small.

It is, however, cheap. For ten dollars, material enough can be obtained to enclose a space of two thousand to three thousand cubic feet, — enough to contain thirty to fifty tons of fodder.

If a silo of this kind be desired for a permanent thing, it can be built of stone near the barn, — the side laid rough, like a wall, but with straight and plumb lines, — and the lining can be put in yearly. No bottom but the ground is necessary. If such a place be made, it could be located, as are many of the barns, on a side-hill, and one end left open; in which case it would be available for many purposes during those parts of the year when not used for its primary purpose. Covered with a roof, and with a covered way communicating with the barn, it might be as handy as one made in cement, and filled with cut fodder.

In this way a pit can be made which calls for no labor or material other than that provided by the farm itself.

As I have described it, any farmer can make use of the silo. I think the chemical processes have been explained in so mechanical a manner, that further explanation is not needed. The result of the fourth experiment you see before you.

QUESTION. Does the ensilage taint the milk?

DR. FAXON. I have got, I think, a set of customers that will growl at a suspicion of taint in their milk. I have a few men who take four or five quarts of milk a day. They are pretty tolerably well off; and they want the best things in the market, although they grumble a little when I raise the price. They tell me that my milk is better now than it has been all summer, and they want to know what makes it so.

QUESTION. Do your cattle eat it all up?

DR. FAXON. Here is the man who feeds it out. He will tell you whether they eat it up clean, or not. I do not see it very often.

MR. WINSHIP. Yes, sir: they eat it all up.

[Dr. Faxon exhibited some specimens of his ensilage, which were critically examined, and commented upon by many of the audience.]

Mr. Hersey. I have given this subject of ensilage a good deal of attention by way of investigation, not by practice. I have no silo of my own. I did intend to build one, and therefore I endeavored to ascertain all that I possibly could in regard to the system; but, so far as I have gone, I have not felt, that, with my limited means, I could yet afford to try the experiment of building an expensive silo. I have listened to the paper which has just been read with a great deal of interest, and there is much in it with which I can agree. The profits which are to come from building a silo I think, as yet, are doubtful. The farmers of Massachusetts generally do not keep more than three or four cows, and therefore they do not want large quantities of this green fodder. If they build an expensive silo (and if they build a good one it will be expensive), they will certainly be out at least fifty dollars a year for interest on the cost of the silo, and repairs. You can all of you readily see how much a silo would do towards keeping three or four cows. Therefore it seems to me, that at present we are not sufficiently well-informed in regard to this matter, to go into it very largely; but I hope that those who have silos, and those who have ample means to build more for experimental purposes, will go on, and that they will give to the farmers of Massachusetts that exact knowledge which is necessary for them to work, and work successfully. You can all of you see that this ensilage is not perfect; and, as I understand, it cannot be kept without losing a portion of its sugar, unless it is kept very nearly air-tight. Now the question comes up, Can farmers afford to lose the sugar out of their cornstalks? That is an important question, and one which will be finally settled by accurate experiments. In order to test this, I say that now, more than ever, we want an experiment station established by the State. If we had an experiment station, how easy it would be for them to test this matter, and to give to the farmers of Massachusetts the result, and thus save them from making, each one, the experiment for himself! Were I to give any advice to the farmers of Massachusetts, I should to-day give the same advice that I gave last winter; and that is, Wait a little longer, those of you who would have to hire money to build silos — wait until the matter is better understood, until we may know and feel a more positive certainty that it is a good investment. Farmers work hard for their money; and therefore I do not think that it is good policy for them to put it out in any very expensive experiments. And yet I am in favor of experiments. I believe that it is the duty of every farmer to try more or less experiments which are not expensive every year. There are many which he can try on his farm, the results of which will be beneficial to him. But here is an experiment which is expensive. It cannot be otherwise than expensive, to build a silo of rocks and cement. If the experiment can be tried in a cheap way, as has been stated here, it would not be open to the objection which I raise against an expensive silo.

Mr. CHEEVER. We have a gentleman here who is a practical farmer, who has built a silo (one of the first in the State), who, I believe, thinks that he has converted me. I have been almost converted. He works every day on his farm; and I want him to make a few practical remarks. I refer to Mr. Thompson of Hopkinton.

Mr. TAFT. I want to say that Mr. Thompson has a farm, that, when he took it, would not grow a mullein-stalk.

Mr. THOMPSON. I had thought about preserving fodder for several years. My son wanted to go into it some time ago; but I told him we did not know any thing about it, and we would wait and see. I went and looked at a silo, told my son how it was made, and he said he would build one: he knew he could do it; somebody else had done it, and he knew he could. We went at it a year ago last July, after we got done haying. We were about six weeks in finishing it. It cost us about three hundred dollars; perhaps a little over, reckoning every thing. It is thirty feet long, twelve feet wide, and thirteen feet deep, and will hold one hundred tons. It is built with concrete, sand, granite, and cobble-stones. The first of September we put in some forty-five or fifty tons of fodder-corn, — what we grew on two and a half acres. About the 25th of November we opened it, and commenced feeding it. We make milk for the Boston market. We could see a marked difference in the quantity of milk the next week after we commenced feeding it. After we had fed it a short time, we took the cows off of the ensilage, and put them on dry feed, and they soon went back. Then we changed back to ensilage again, and the yield of milk increased as before. We fed it through the winter to eight or ten milch cows, until the 12th of May, when it was all gone. We were then getting ten cans of milk a day. We put them on hay that was cut on the 17th of June, as good hay as ever grew. In three days they went down to eight cans a day. We could not get them up on any thing we gave them after that.

This year we have put in about sixty-five tons. We commenced feeding the ensilage some three weeks ago, and are feeding now about seventeen or eighteen head. We feed about fifty pounds of ensilage to our milch cows, and some three or four pounds of dry feed, six or seven pounds of grain, or three quarts of cotton-seed meal, a day — no hay.

QUESTION. What was the expense of putting it in?

Mr. THOMPSON. About a dollar a ton to cut it, take it from the field, put it in, and cover it up; and it cost us about a dollar and a half a ton to raise it. What we put in this year was grown on about four acres. Our corn did not come up very well, and it is well known that corn did not grow well this year: the crop was not more than two-thirds what it was last year on the same ground.

Mr. HERSEY. You say it costs a dollar and a half a ton to raise it. Can you raise an acre of corn-fodder for twenty-two dollars and a half?

Mr. THOMPSON. On my land the work is a very small part: all the hand-work is dropping the corn. If I had a machine, I could do it for a little less.

Mr. HERSEY. How much manure does it take to raise fifteen tons of corn-fodder?

Mr. THOMPSON. It will take about three cords of what I should use; that is, clear manure.

QUESTION. At what stage of the growth of the corn did you cut it?

Mr. THOMPSON. I cut it when some of the ears were very nearly large enough to boil.

QUESTION. What kind of corn?

Mr. THOMPSON. I planted Southern white corn.

QUESTION. What was the condition of the cows in the spring?

Mr. THOMPSON. I can tell you of one in particular that has been a winter cow for some six years. All who saw her last spring said she was a hundred pounds heavier than they ever saw her before in the spring of the year. I do not know how that was; but, at any rate, my cows looked better than they did other years.

Mr. HADWEN. How many acres have you that you cultivate?

Mr. THOMPSON. There are about thirty acres, pasture and all. We have now twenty-one head of horned cattle, and two horses.

Mr. HADWEN. Have you ensilage and hay enough to carry them through?

Mr. THOMPSON. Yes, sir, I have.

Mr. TAFT. You cut but very little hay?

Mr. THOMPSON. I cut, perhaps, six or seven tons of good hay.

Mr. CHEEVER. Will you tell how many acres you have of tillable land, aside from the pasture?

Mr. THOMPSON. There are about five acres of river-meadow, we call it bog-meadow, land.

Mr. CHEEVER. About how much tillable land?—that is the point.

Mr. THOMPSON. There are about eight or nine acres of pasture; and the rest is tillage-land,—about sixteen acres of tillage.

QUESTION. Don't you feed any grain to your cows?

Mr. THOMPSON. If I am feeding cows, I put in meal, and sometimes a little shorts. My stalks are cut three-eighths of an inch long, and well trodden down.

QUESTION. Any injury to the cows from feeding three quarts of cotton-seed meal a day?

Mr. THOMPSON. No, sir.

QUESTION. Does it not affect the bags?

Mr. THOMPSON. No, sir. I feed it in two feeds.

QUESTION. Do you raise your own cows, or buy them?

Mr. THOMPSON. I raise some, and buy some. Sometimes I keep a cow one season, and sometimes two, three, six, or eight, just as it happens. If I get good ones, I keep them six or eight years.

QUESTION. You do not find that the cotton-seed meal does any damage to those cows that you have kept for several years?

Mr. THOMPSON. No, sir.

QUESTION. Would you advise farmers with small means to borrow money to put into a silo?

Mr. THOMPSON. That is just the class of men for whom the silo is adapted. A man who has plenty of money of course can do as he has a mind to; but the man who has but little must economize. As far as my experience goes, two or two tons and a half of ensilage will make as much milk as a ton of the best hay that I can get.

QUESTION. You said your silo cost you about three hundred dollars: does that include your own work?

Mr. THOMPSON. Yes, sir. We had to hire a good part of the job done. We had to hire all the stone drawn, and all the cement drawn. We counted every hour's work we put into it.

QUESTION. How many times a day do you feed your cows?

Mr. THOMPSON. Only twice, — ensilage, dry fodder, and grain at the same time.

Mr. HADWEN. Do you consider the quality of your milk as good as it used to be?

Mr. THOMPSON. I will tell you a little circumstance, and you can judge for yourself. My milk goes to Boston. Last September, a year ago, the man who buys my milk found out that I had built a silo, and got my corn in. He had had my milk for a good many years. He came to see me, and said, "You can't make milk out of that stuff: it isn't fit to make milk of." I said, "I have got it in there; my cows are eating it; and, if you don't want my milk the first of October, just say so, and I will do something else with it." I waited some four weeks before I heard a word; and then one of the firm came down there, and looked at the milk, and said it was all right. I saw Mr. Royal last March, and asked him how the milk was. He said he had kept a pretty good watch of it, and it was all right. I had a chance to sell my milk outside, and he would not hear a word about my letting it go. He said, "I want your milk, and you must not let it go."

The CHAIRMAN. I would like to ask Mr. Cheever if this experiment has convinced him.

Mr. CHEEVER. I will answer that by asking another question, — the same question that was asked me this afternoon. My impression is, from what I have heard Mr. Thompson say — I have never put it to him directly, and do not know as he can give a direct answer — my impression is, that, having been in the milk business for twenty years, perhaps (a good many years, certainly), having had the same trouble that all others have had of low prices for milk, and feeling uncertain whether it were best to give up the business or not — my impression is, that he feels stronger now in the milk business than any time before within ten years; that he is satisfied, from his books, that his farm is bringing him more money for the labor and capital expended in the milk business than it has done before. Is that impression correct, Mr. Thompson?

Mr. THOMPSON. Very nearly, sir.

Mr. CHEEVER. Then, if Mr. Thompson can introduce a silo, and go right on in the same business, and make a number of dollars more on his balance-sheet at the end of the year than ever before, why does not that answer the question?

Mr. TAFT. It seems to me that the audience ought to understand a little about the condition of Mr. Thompson. He is not on a farm like those that we see here in Norfolk County or up in Franklin County. I presume that on Mr. Thompson's farm, when he took it, there was not an acre from which he could get five hundred pounds of English hay. It was utterly useless for a man to think of pasturing cattle on the land that Mr. Thompson had.

Mr. THOMPSON. I will say this: twenty years ago, all the hay that grew on the land I cultivate now one horse could have drawn anywhere.

Mr. TAFT. There is no question about that. I much wondered, when he started, that he had the pluck to do it. I know, of my own personal knowledge, that he has got a good living there, and is making money. Whether you want silos on your fine farms may be a question; but I am satisfied of this, — that, if you are going to make milk on such land as Mr. Thompson has, you cannot do it by pasturing; you cannot do it by raising crops, as our friend Mr. Cheever would: you have got to raise your crop before the drought comes, and put it where you can take care of it. I have no question that Mr. Thompson has made a success with ensilage. There is one thing very certain,—that, when he spends a dollar, he does not lose a tenth or a mill on what he puts out, because he earns his money by hard work; and, gentlemen, if you understand this, you will appreciate it.

Mr. **Ware** (of Marblehead). I was not present when the essay was read before you; but, as near as I can judge, you want experience, you want facts. I will tell you my experience in a very few words, without any theory whatever.

I was convinced years ago that we in New England, if we would succeed in farming, must make a change; and, on looking about, I felt that the change was indicated in the building of silos, and the use of ensilage: therefore this year I have built a silo, and have put in about one hundred tons of ensilage,—the product of four acres of fodder-corn and three acres of heavy rowen, mixed, and put in together. I have built a good silo on the most approved principles, and filled it according to the best directions that I could get, and I am now feeding out the ensilage; and what you want to know, I suppose, is the result of the feeding.

Mr. **Taft.** What did your silo cost?

Mr. **Ware.** The silo cost about five hundred dollars to build: the machinery necessary to run it completely and practically cost about four hundred dollars more, I should say. I have not figured it exactly; but in round numbers, say, I have invested about nine hundred dollars.

The question has arisen here, whether farmers can afford to build silos. I have never heard the question asked, whether farmers can afford to build barns to put hay in, or whether they can afford to build root-cellars to put their vegetables in to feed to their cattle. Now, the question comes, Can they afford to build silos to put ensilage to feed to their cows? In answer to that, I will say that it takes the product of two acres of grass to winter one cow. If we can winter six cows on the product of a single acre, it seems to me that question is answered; and that is the result of my observation and experience. I am now feeding my herd of ten cows, four calves three months old, six horses, and a dozen or more of swine, substantially on ensilage. The cows are having nothing else, except that those that give milk have two quarts of cotton-seed meal. Some of my horses have ensilage only, some of them have a little hay with it, and they are thriving nicely. I had supposed that this food would have a bad effect, making animals scour; but there is no trouble of that sort. My horses are thrifty and brisk. My cows have been milked all summer. I want summer milk, not winter milk. I took them in from good fall feed — I allow my cows to run over my fields, where there is first-rate feed, until it freezes — I took them from that field, and put them on ensilage, with the addition of two quarts of cotton-seed meal, and they have increased their milk considerably; so that I feel it is no longer an experiment, but it is a complete success with me. I felt that it was no longer an experiment before I tried it myself, because I had heard the experience of many others, and I was satisfied that I could depend upon that experience. We have in our county a man who fed his stock of milch cows on ensilage all last winter. I went to see them in the spring, and they were looking finely. I saw a small cow, not much bigger than a goat, filling an eight-quart can at a milking, and fed on ensilage alone.

Now, we are told that a great loss takes place in this fodder by the process of fermentation. Allow that there is: if, with that loss, the result of feeding it is better; if the result shows an increase of product, either in milk or flesh, — what care we, brother-farmers, how much percentage there is lost, according to any calculation that has been made? It is *results* that we want.

The question has been asked, Can farmers afford to borrow money to build a silo? I tell you, my friends, that last year I paid three hundred and odd dollars for hay; and I felt that I could not afford to do that. I built a silo, and run the risk; and my barn is filled with hay, and there it lies. I am feeding my cattle with ensilage, and saving my hay for another purpose, to be used next summer. I shall not have to pay a dollar for hay: I think I shall have some to sell.

The question settles down to this: Is it better to winter six cows on the product of one acre, or to keep one cow through the winter on the product of two acres? It does not require very much arithmetic to cipher that out, and that settles the whole question. That is the result of my experience; it is the result of the experience of others in Essex County whom I could name; and I have no question about it.

Now, one word with regard to the question whether the milk tastes or smells of the ensilage. Mr. Walcott of Peabody, who was the gentleman to whom I alluded, supplies milk in Salem. A lady customer sent word to him that she could not take his milk, for it tasted so of ensilage she could not endure it. "Very well, madam," he said, "I will supply you with something else." He had been supplying her with milk that he bought from a neighbor, that was not made from ensilage. He supplied her afterwards with milk made from his own cows, that were fed on ensilage, and the lady said that was all right. I have been very careful, for I had heard the story that the milk tasted and smelled of ensilage. If that was so, it would be a serious objection; but really I have never tasted sweeter milk than I am getting from my cows at this time. I have invited guests who have come to the house to taste it carefully, and see if they could detect any bad taste or any bad smell in it; and they have all pronounced it to be excellent.

Mr. Taft. Do you consider corn-fodder the best fodder to grow on first-class land to put into your silo?

Mr. Ware. So far as my observation goes, I do, for this reason: I think there is no difficulty in raising forty tons to the acre. Before I tried it, I thought I could raise fifty tons. I still think I can; but I think there is no difficulty in growing forty tons, so that we get a very large quantity to the acre, and, by allowing the ears to mature to the point when the largest ears are fit for boiling, there is a great deal of the grain principle in the crop. I planted the rows three feet and nine inches apart with a corn-planter, calculating to leave a stalk every once in nine inches. It did not come up very well (it was a bad season this year); so that it was not nearly so thick as I expected, and I did not get so large a crop as I should have done if it had come up better. I got over thirty tons to the acre; but, if it had come up fairly, I should have had forty tons. I found that where it came up a stalk once in nine inches the stalks grew quite large, and were as well developed as where they had more space; but I should recommend planting the rows three feet and a half or nine inches apart, and having a stalk as near as may be once in nine inches. Some of those stalks weighed nine pounds apiece.

Mr. Taft. I asked that question, because I was at a silo in Saxonville, on Mr. Micah Sampson's farm, and in the barn he had thirty-three oxen; and the man who ran the place told me he put them in in November, weighing twenty-three or twenty-four hundred to the yoke by actual weight. He kept them in the barn thirteen weeks. They were then sold, and were going the next day to Boston; and he estimated the weight of the oxen — and I think he was not a great ways out — at thirty-eight hundred to the yoke. They were fed on ensilage, and all the corn-meal they would eat. I then asked Mr. Neal, who had charge of it, what was the best material to put in the silo. He said, "The best quality of English hay, just as it is heading out." How much hay he would grow to the acre, I do not know. Of course, there is land that will grow ninety or a hundred bushels of corn to the acre, manured as they manure first-class land on Concord River.

Mr. Ware. I will mention that I put in three acres of heavy rowen that was just heading out.

Mr. Taft. What would that weigh to the acre?

Mr. Ware. It would cure probably two tons to the acre when it was green: I don't know how much it would weigh; but I had a very heavy growth, and I mixed it with the corn. My cows eat it all up clean: there is no waste. The three calves are eating ensilage, and they are thriving: they look remarkably well. The pigs are rather young, and I do not feed them on that alone: they have about half of that at the present time. Part of my horses will eat it all up: the other three have not yet arrived at the point where they will eat it as they do hay.

Question. How do you cut your rowen?

Mr. Ware. I cut that a little longer than the corn. I cut the corn three-eighths of an inch long, or as near that as may be. I alter the machine to cut the rowen, and cut it an inch and a half long.

Question. What kind of corn do you raise?

Mr. Ware. It was Blunt's prolific. I think that is better corn than Southern dent corn, because it inclines to more size. I had one acre of Southern dent corn, and two acres or a little more of Blunt's prolific.

Mr. Russell. You say you feed horses on ensilage: can you state how much ensilage you feed to a horse?

Mr. Ware. I feed them forty pounds a day; and those that eat forty pounds a day have a small quantity of hay and grain.

Mr. Russell. What do you mean by a "small quantity of hay"? About how much?

Mr. Ware. I should say five pounds, perhaps.

Mr. Russell. How much grain do you feed each horse?

Mr. Ware. I should say two quarts to a meal. And allow me to say that those horses are not race-horses: they are horses I use on my farm. I drive them moderately, but they prick up their ears very nicely since I have given them ensilage. I have a light carriage; and I have felt some little fear, as I belong to the Essex County Agricultural Society, that I might be called to account for driving fast horses.

Mr. Russell. If I fed a horse forty pounds of any nutritious food, five pounds of hay, and six quarts of grain, I should do it solely for the purpose of getting manure.

Mr. Ware. You understand that this ensilage is supposed to contain about seventy or eighty per cent of water?

Mr. Russell. I should say it was entirely useless for nutrition, if a horse could get away with that amount, five pounds of hay, and with two quarts of meal at a feeding. Are your horses at work?

Mr. Ware. Not hard, but steady work.

Mr. Russell. For a horse not at hard work, I call four or five quarts of oats and eight pounds of hay a full ration.

Question. How much water does a horse drink in the course of a day?

Mr. Russell. Horses vary. Horses are like men, — some of them are thirstier than others.

Mr. ——. I asked that question because the ensilage that horses eat contains all the water they want.

Mr. Russell. I am sure that Mr. Ware does not have any trouble about watering his horses. If he gets forty pounds of any sort of food into them, besides that hay and grain, I think he is wasting his ensilage.

Mr. Ware. I said five pounds of hay. I do not know how many pounds, but a very small quantity.

Mr. Hadwen. I only rise to put in a little evidence in this case, not growing out of my own experience, but from my observation and reading, and my talks with gentlemen who have tried the silos.

It was my good fortune to meet, in September, a gentleman, who, I might say, stands in the front rank in the silo business; that is, Mr. Mills of New Jersey. He has had six years' experience, and his accounts almost staggered me. I had been on the fence in relation to the silo question, gathering what information I could from all sources; and I have to confess that the preponderance of evidence is in favor of the silo. Mr. Mills informed me that in the year 1880 he fed the product of thirteen acres of land to one hundred and twenty cattle (one hundred being milch cows, and twelve horses) for a period of seven months. I questioned him further in relation to his milk, which he sent to the New-York market. He informed me that the quality of his milk was improved, and that he obtained a greater price for his milk than was paid for any other milk which went into that market. He now has six silos, and I questioned him somewhat in relation to the construction of these silos. He informed me that a great deal more expense had been put into the silo than was necessary. He said, as Dr. Faxon told us, that the great object was to get pressure upon the top to press out the air from the fodder. He said, furthermore, that a silo should be filled in two days; that, if it could not be filled in two days, a partition should be made in it, and a portion filled; but the work should be completed in two days, and the pressure applied immediately. He applied the pressure in sections. His silos are forty feet long, thirteen feet wide, and twenty feet deep. The fodder is piled fifteen feet high above the silo, so that when it is pressed down the silo will be even full. He informed me that he put on this pressure in sections of plank, each four feet in width; and, when he used the ensilage, he removed the plank, and cut down perpendicularly one section of four feet. He also stated that he weighted these planks with grain: five tons of grain in bags was put on each section of four feet; and when the grain was removed it was ground, and fed with the ensilage. I stated to him my mode of feeding cows, that I had practised for a good many years, and he replied to me at once, that I was an extravagant man, and could not afford to do any such thing; and in hearing the testimony here this afternoon, coming from men like Mr. Thompson, and my friend Mr. Ware — every word of whose statements I can believe in relation to this matter (and I feel also that I must believe every word that Mr. Mills has said, for he appears to be a gentleman of veracity, and certainly he is a very large breeder, — undoubtedly the largest in this country) — in this testimony, we have very strong evidence that a progressive farmer has got to look into the silo question in a candid way. I am rather confirmed in my belief that a silo would be more beneficial where the soil is sandy than where it is a stiff clay, such as we have in some sections of the State. We all know that corn is more easily grown on sandy soils than it is on heavier soils.

There is one other point, and then I stop. Mr. Mills informed me that he had rather come to the conclusion that ten tons of good grass cut at the proper time was of equal value with forty tons of corn ensilaged. That is all I have to say.

The CHAIRMAN. I should like to ask Mr. Ware if he can tell us how much the hundred tons of fodder that he puts into his silo weighs when it is taken out.

Mr. WARE. I cannot. I did not say I was feeding my cows sixty pounds a day exactly. I do not know how much loss there is; but I cannot conceive what becomes of the loss, for my silo, except on top, is water-tight and air-tight, and this corn-fodder is put in perfectly green. The men are cutting it in the field, the teams are hauling it, and other men are cutting it with machinery to drop it into the silo at the same time. It is put in perfectly green, and there is no escape for any thing, except by evaporation at the top, that I can conceive of, and that must be very slight.

The CHAIRMAN. Shall you know, when you have fed it out, whether you have fed out one hundred tons, or what you have fed out?

Mr. WARE. I don't know that I can tell.

QUESTION. Can you tell to what density you press it?

Mr. WARE. Sixty pounds to the cubic foot. I did not weigh it in: I simply estimated as to the weight of the crop.

QUESTION. How do you consider it compares with corn taken right from the field, and fed, in value?

Mr. Ware. I have fed corn-fodder a great many years green from the field. I have never fed corn-fodder so mature as this that I have put in the silo, and I have never kept my cows entirely on corn-fodder; but as a matter of opinion, without any exact knowledge, I think that the corn that I put in as ensilage is of more value as feeding-material than what I have been in the habit of feeding in its earlier stages. My cows are doing remarkably well on ensilage alone. They always did well before on green corn-fodder, with the addition of some other food. I never fed it entirely alone. Simply as a matter of judgment, I think they never did better than they are doing now on the ensilage.

Recess until half-past seven P.M.

Evening Session.

The meeting was called to order at half-past seven o'clock by Dr. **Wakefield**, who introduced as the lecturer Hon. **Paul A. Chadbourne**, ex-president of Williams College.

THE FARMER'S HOME OF THE PAST AND FUTURE.

BY HON. PAUL A. CHADBOURNE.

It is useless to try to escape work in this world, unless we are willing to neglect duty, and shut ourselves out from those men who are blessing the world by increasing its products, its knowledge, and its goodness. Four years ago I insisted upon resigning my place on the Massachusetts Board of Agriculture, because I could not find time to do my duty. It was true, I had worked years for nothing, and on that account might, perhaps, have claimed freedom from work, while reaping the honor of the place; but holding that a man is to do what he undertakes to do as well as he can, whether paid for the work or not, I resigned, and gave my place to abler hands with more leisure for the duties of the Board. But here I am to-night in my old place, by invitation of the honorable secretary; and I accepted his invitation because I have one thing more, at least, that I wished to say to the farmers of our State on one subject which I wished to present to them for their future consideration.

We meet in this Board in our home societies to discuss the progress in agriculture, and to devise means for greater progress in time to come. We raise every farm-product in greater quantity and in greater perfection than we did fifty years ago. But how is it about the men and women on the farm, the children on the farm? Are we doing so much better for them, that they shall love the farm, and that farm-life shall be in reality what it ought to be, what it may be, — the most satisfactory life of our people?

In order to emphasize this question, you will please bear with me while I give a sketch of farm-life in New England, mark something of its progress, point out what seems to me to be some of its defects, and some of the means by which it may reach its true place in the aggregate life of nature.

I am satisfied that there has been great improvement in farm-life within forty years since the time that I left the farm. I have this fall returned to the place of my boyhood, and have spent the last three months on the farm that has been in the family over a hundred years, — a farm that I bought, not because I was able to properly care for it, but because it belonged to my ancestors, and held two generations of them beneath its green turf. Here I was surrounded by the farms that I knew well when a boy, — farms still in the old family name, though the fathers are gone, and the sons, who were my schoolmates, rule in their places. It is easy, then, for me to see the improvement, not in a single place, but all along the line; not simply the improvement in cultivation of the soil, but in general methods of living. I cannot mark the change better than by describing some of the conditions of farm-life as long ago as I can remember, by rehearsing some of the maxims that then prevailed among farmers, — maxims that they thought came from Dr. Franklin; but, if he was the author of them in the crude, harsh form in which they were applied to farmers' boys, he deserved to be struck hard with that lightning he used to bottle up.

In the first place, on the average farm of Maine forty years ago they had not discovered dry wood. If they had dry wood at all, it was simply for kindling the fire, — the dead limbs of some old tree, or bits of broken boards; but to burn in the body of the fire regular, seasoned body-wood would have driven some of the old farmers into frenzy. They jogged off into the woods, cut down some birch, and perhaps an oak, picked up some old soggy log, and perchance found something better in some dead tree standing. This was hauled home, and piled up in the dooryard, and perchance, the next morning, had disappeared under a layer of snow, from which the wood was dragged as it was wanted, cut, and carried into the house after they had pounded off all the snow that would pound off easily. The rest could be thawed off, if the wood for the night was piled near the fire. At other places, where there was perhaps less thrift, a single tree would be cut down, and "twitched up," as they called it, limbs and all; and this gradually disappeared: then another took its place. The most thrifty farmers did make it a point to get up wood in winter — generally the limbs of the cord-wood they hauled to market — for summer use; so that the goodwives had dry wood, if ever, in hot summer-time. But fortunate were those whose yards were not bare of wood before haying was done, which in those days was late in August, if not in September. I remember also, at the schoolhouse, or schoolhouses (for I attended school in several districts, to make the money go farther), each farmer furnished his proportion of wood; and I can see them now, as they came with loads of green logs, and piled them up before the schoolhouse door. Then the boy or young man whose turn it was to build the fire next morning was excused to cut and split logs for the next day's fire, and then, on a cold winter's morning, started before sunrise from his home, with an armful of kindlings, to build a fire in the big fireplace of the old schoolhouse. If the lot fell upon a bungler, or worthless fellow, then the big fireplace was surrounded with shivering urchins and tearful girls suffering from the cold. The only redeeming feature to all this was, that they made the fireplaces so large in kitchen and schoolhouse, that, if the fire once begun to burn in the huge pile of green wood, it made a heat that dried the wood, and warmed all around it, and left a cheerful remembrance of comfort, in contrast to the discomforts, that remains to this day, and throws around the old fireplace a halo of glory that scarcely belongs to it.

In the second place, the farmers of that day, living where pure air and pure water were plenty, ready-made to their hands, too often managed to poison both of them, and sow in themselves and children the seeds of disease, if they did not reap sudden early death.

The old-fashioned living-room of the farmhouse, used for cooking and eating by day, and as a sitting-room in the evening, was well ventilated so long as the old fire held its place on the hearth; but most of the sleeping-rooms were "bed-rooms," so called, just large enough to hold a bed, with standing-room to get into it; and in such rooms two persons breathed the air over and over again through the long winter nights. In the summer they were driven to ventilate; but in winter the air, though cold, was unfit for human beings to live in. While the houses generally were so ill-heated as to be cheerless, they were so poorly ventilated as to lower vitality, and lay the foundation for consumption and other kindred diseases. There was also in the cellar all the vegetables from the farm; and in spring-time many of them were left to decay, and contaminate the air of the house, the foul air making its way readily through the defective floors.

Then the well was dug in the most convenient place, without any proper regard to the drainage on the farm. If the water remained clear and tasteless, it was considered pure, as a matter of course. So fevers were abundant; and some families were said to have a predisposition to fever, which, in most cases, meant that the sanitary condition of their homes, the impure air and water, brought fever to some member of the family almost every year.

Then, look at the products of the farm, and the labor required for its cultivation. The raising of stock of all kinds was a haphazard matter, — "native stock," we called it. The animal raised was spared simply because it had some peculiar color or point of form to recommend it; but no one could tell what would be the result. The promising-looking heifer might make a cow that would give half a mess of milk, or milk so blue that cream was either an unknown quantity, or a steam-engine was needed to get any butter out of it. I wonder if some farmer before me does not have a grudge against those old cows that furnished cream, that had to be punished all the long winter evening to yield butter, and then often yielded nothing but froth. No wonder the old New-England housekeepers so often thought their churns bewitched.

As a sample of fruit-raising also, take the old-fashioned orchard. I can remember two large orchards on my own farm; and a few of the old trees still remain as reminders of the generations that are gone. Not one tree in ten yielded fruit that could be eaten with comfort. They were all seedlings. No one knew when they were set, what they would bear, except that they would bear apples. There was not a grafted apple-tree on the place. Here and there a tree produced apples that could be gathered for family use; but nine-tenths of them were sour, bitter crabs, that would indeed yield cider to curse its maker. I think the cellar I now own has many a year had more than fifty barrels stored in it; and I have never heard that any of it did any good, except the small part that changed to vinegar. Some of it was sold for money, it was true; but it was poor stuff to sell, in any point of view.

The meat of the farm was salt-pork and salt-beef. Cabbage was about the only vegetable that figured largely in the farmer's bill of fare. Pork and potatoes were the basis of the winter living. Fortunately for the children, milk was a cheap article, generally abundant, and so they had enough of it; and, as all the best part of milk for children remains after it is skimmed, they could not be cheated out of what was really the best thing for them to eat. The cows, even the poor natives I have described, have been the salvation of the farmer's household in giving to the children the life-giving nourishment which ignorance or avarice might otherwise have denied to them.

There were mistaken notions in regard to eating, clothing, sleeping, and working. The farmer's children, in general, were over-worked and under-fed; that is, if you consider the real value of food. They were too much exposed to cold and wet, and too often deprived of the proper amount of sleep. Life was made hard and unpleasant, and injurious to the best development of mind and body, from a mistaken notion that it was a good thing for children to learn to "rough it," — to become tough by hard labor, and exposure to cold and wet.

There were marked exceptions to the picture as I have drawn it, but they were few. Farm-life for those who owned the farms, and for the children raised upon them, was in general hard, giving but little real enjoyment and gist to life, and certainly very little culture.

The pleasant things remembered about the old farm are so remembered because it is the habit of the human mind, I am glad to say, to remember the pleasant things of life; and few places can be so hard that we shall not have for them some attachment. It is said that old sailors grieve to leave their miserable quarters in the forecastle of the old ship in which they have long sailed; and Dickens brings out this same trait of human nature when he represents Oliver Twist as crying when he left the miserable place where he had spent a squalid babyhood as a parochial pauper. Meeting one of my old boyhood friends this fall, and referring to the old modes of life among our fathers, he replied, "It was a mere struggle for existence." I replied, "Yes, but a much harder struggle than there was any need of." My friend owns the same acres where his father lived. The soil is by nature no better; the same skies are over him: but he lives a very different life from what his father lived. On the same old farm he can have around him, and does have around him, the luxuries of life even, which give to farm-life an entirely different status for a man of thought and heart from what it had when he was a boy. The same change in kind, though not always in the same degree, I notice on all the old farms. The sons, as a whole, have advanced upon their fathers in the art of living. The physical, intellectual, moral, and social life are better cared for than either was at that time. Houses are better, and better furnished. The farmers and their wives do less exhausting labor than they did in those old times. Their food is better; their houses are better supplied with papers and books; their help is better paid. Where the Yankee girl fifty years ago worked for fifty cents a week, or a pound of wool, she wants and gets two or three dollars a week, or six pounds of wool. (She takes her wool, however, now, only in the form of cloth, such as no farm-born Yankee girl fifty years ago ever thought of wearing.) The farm-hand who used to work for fifty cents a day, or half a bushel of corn, now wants and gets his dollar or dollar and a half; and a bushel of corn would not satisfy him. So wages have advanced for farm-laborers much more than the cost of living. This shows that farming pays all better than it did.

Then the cellar is not now so often filled with cider, to brutalize old soakers, and lay the foundation of intemperance in the farmer's son. The haying can now be done without New-England rum in the field, with all its attendant evils. The schools are better, and the churches better built and cared for, except in those hill-towns where the number of inhabitants has greatly diminished. Some of these places have still to contend against great disadvantages, so much of the spirit of fifty years ago still dwells in some of them. I do not now speak of those isolated examples, but of the general movement all along the line of New-England farm-life.

But the movement has not been so rapid or so general as it should have been; and therefore I wish to throw out the suggestions that have occurred to me in observing what has been done, and what still remains undone. I see, or think I see, great possibilities in the farmer's life yet to be reached.

Agriculture is now, and must from the nature of the case ever remain, the employment of the great mass of people in the world. Men cannot live on the products of mines and mills. The raw materials of food and clothing, to say the least, must come mainly from some form of agriculture; and, while this is so, agriculture must employ the greatest number of any business in the world.

The Commissioner of Agriculture reports that a majority of the adult males of the United States are engaged in agriculture, and that farms and farm-implements represent fully two-thirds of the productive wealth of the nation. This condition of life, so far as we can see, must, from the necessity of the case, remain essentially as it now is. Since men and women are the final product we wish to reach, and the increase of rational human enjoyment the great end of rational labor, it is of the utmost importance that this great mass of humanity connected with farm-life should be able to secure the least possible conditions for human development and enjoyment.

The *home* is the centre of life; and the farmer's home we wish to improve, — to carry on more rapidly and intelligently that good work that has been going on for the last forty years. It is an exceedingly uncertain thing to prophesy in regard to the future conditions of human life. Some new element may come in quite out of our line of data, and the problem be solved in a way we never thought it could be. In fact, that which we reckon as sure to take place not only often fails to come, but the exact opposite may appear. As an illustration, I remember when my own town burdened itself with a permanent tax to aid in building a railroad. The argument used with the farmers to secure their votes for the measure was, that railroads must burn a great deal of wood, and so the value of every woodlot on the hillsides would be largely increased. All this seemed to be conclusive; no one thought of doubting such statements: and for a time the railroads bought wood, and the good time for woodlots seemed to be at hand, when, all at once, the railroads began to burn *coal*, so they did not wish to buy wood; and more than this, they began to bring in coal to take the place of wood, so that the woodlots were not worth as much as they were before the railroads came. The taxes on the bonds had to be paid all the same.

When the war abolished slavery, we at the North were glad to see slavery go; but we almost all thought our supremacy as a nation in cotton-raising was gone. The "free negro would not plant cotton," it was said; or, if he planted it, he would be too lazy to gather it at the proper time. Well, we see more cotton raised at the South than ever before. It is picked and baled in better condition than ever before. All the world has to do, is to say how many millions of bales it wants, and the negro that we thought would not raise cotton at all will sell the world all it wants.

Such cases might be multiplied; and therefore, when picturing the farmer's home of the future, we must remember that we live in an age of invention and discovery, and some new element may come in that we at present have no thought of. We must, however, take all the known elements, and do the best we can with them. It seems certain that a very large proportion, probably a majority, of all the people, must continue to be engaged in agriculture. There must be food for all, and such variety of food as will call for a great amount of hand-labor; and there must be material for clothing, — wool and cotton. These come from the field.

The first question, then, that arises, is this: Is the tendency in the future to be to a division of land into small farms, or a swallowing-up of small farms into great estates? Some of the monster-farms have been set up as samples of what is to be; and we have been told, that, as manufactures have grown from the wheel and loom in the farmhouse, so the great farm where machinery can be used on a grand scale is to supersede the little homestead where the wheel and loom once found a home.

As examples of what may now be done, I shall refer to two of these great estates, — one North, and the other South.

The famous Dalrymple farms, or farm, of Dakota. The first has fourteen thousand acres, all under cultivation. The same man manages two other farms; so that he has in all about seventy-five thousand acres of wheat. The territory under cultivation is equal to forty-five square miles; that is, a piece of land one mile wide and forty-five miles long. The amount in highest cultivation is about thirty thousand acres, divided into five-thousand-acre lots. The combined farms yield about six hundred thousand bushels of wheat and seventy-five thousand bushels of oats for the horses and mules. In harvesting, the manager uses a hundred self-binding harvesters and twenty-four steam-threshers. The straw is burned as fast as each pile is cleared of grain. It requires two hundred thousand dollars to pay the bills of the year.

But now mark how much, or rather how little home-life, this enormous production represents. In the spring, men of all nationalities, hailing from no one knows where, apply for work. It is the same all the season through; and, when the work is done, the men go as they came. In the first place, then, we hardly see a trace of quiet home-life in all this vast machinery; and, should that great farm remain indefinitely in one man's hands, there might indeed be a palace for the owner, but there could be no farmers' homes there. There could be nothing but hired laborers' homes, from the very nature of the case, — a kind of tenantry analogous to what we have in Ireland, except that they would receive wages, instead of working land on their own account.

But I think it would be conceded by all, that, in a country like ours, such a farm would be carried on indefinitely only by the same floating class of laborers that now carry it on; so that such a system of farming, could it prevail, would be antagonistic to home-life.

But we go one step farther, and say, as we now understand the principles of agriculture, such a farm can be carried on with profit in this way only for a limited time. The method is simply land-robbery, or robbery of the soil; and, as the time comes when the soil demands a return, this return must be made from many centres where stock can be kept, and from which farm-fertilizers can be carted; and this can be done at a profit only for a very short distance from the various centres. The sustaining and reclaiming of farms seem to demand that they should be of moderate dimensions, — that seventy-five thousand acres of wheat should represent five hundred large and profitable farms of a hundred and fifty acres each, in a State having diversified labor, as all our States are bound to become. For fifty years to come, that great tract of land will support five hundred farmers' families, and furnish a larger agricultural product of all kinds, for sale, than it possibly could without a family upon it, by the present gigantic system of misnamed agriculture.

Mr. Edward Richardson of Mississippi owns fifty-two thousand acres of land, and raises twelve thousand bales of cotton, being the largest cotton-raiser in the world. He turns every thing to account; and he lives in a place where this system can be carried on longer, probably, than the Dakota system can at the North. But men like Richardson are as rare as Napoleons. Such great estates must fall to pieces, or at least be few in number. The tendency North and South is to small farms, as diversified industry increases, and diversified crops are called for, — those that require an increase of hand-labor.

The old plantations in many places at the South are broken up; and small farmers raise ten, twenty, or thirty bales of cotton, which they gather with care, and turn into ready money. And so I dare to prophesy, however risky this business may be, that the tendency will be towards smaller farms, even at the West and South; that manufactures will spread, and the farms will be called upon for a varied product, which, with its increased demand for hand-labor, always has a tendency to diminish the amount of land in each farm.

The time is coming, though perhaps a long way off, when the surplus product of our land will come from a multitude of small farms representing pleasant, thrifty homes, instead of from great plantations representing nothing but land-robbery and unsettled wandering wage-labor. And the products of our soil will be more and more consumed in our land, as new branches of manufacturing spring up to supply the materials now purchased abroad.

Believing this to be the inevitable result from the very nature of soil itself, and from human nature, which seeks diversity of employment, we ask ourselves what can be done to make those homes what they ought to be, so that the life in them shall reach its fulness of physical, intellectual, and social enjoyment. And the few words I shall say in answer to this question I shall speak to ourselves, as we certainly are to begin or carry on the work, if we have not already begun it. And one pleasant thing we have to say at the outset is, that all that is needed is for the good work to go on in general in the same line it has been going for the last forty years. We call for no revolution, no change of tactics, but only for that quickened sense of reform which has done much, but has thus far failed to complete its work, and that ready hand to labor, which, when rightly directed, can secure success just as easily as failure.

The first idea we want to see prominent on every farm is, that its chief end is *home*, and that the highest product of the farm — that for which all others are simply conditions — is men and women. We counsel the owners of farms to see that the fruits are the best that can be raised, that the animals are of the best breeds; but we want, above all, that every son shall go forth from the farmhouse with good education, trained to honest labor, with a sense of his duty towards his fellow-men, his country, and his God; and every daughter with equal training, certain then that she will find her own sphere through that womanly instinct implanted in her nature which needs only culture and a fair chance to make her the blessing to the world which all good women are.

To make men and women, we need to secure for them the conditions of good health, of pleasant, well-directed, useful labor, and the means of intellectual, moral, and social culture. This the farmer must bear in mind in locating for life; and, if the surroundings where he is compelled to locate do not readily give the conditions of all these, he must be prepared to do so much more in the family itself, to supplement the deficiency.

The first thing, then, in the choice of a farmer's home, is that it be in as healthful locality as possible. I refer now to the general character of the region. Then, on the land chosen for a farm, there is often great choice of location as to healthfulness. As a general rule, the buildings should be placed on the highest ground of the farm, if it is readily accessible. It is wonderful what change for the better we can often secure by going a quarter of a mile, and raising one or two hundred feet even. On a hill we may dwell in clear, dry air; while our neighbors half a mile away may spend their autumn and spring nights in fogs and chill. High ground, giving good drainage for buildings, and pure water for the well, is the first thing to be secured. If water can be secured from a spring that comes directly from the deep strata of rocks, so much the better. Never mind the fear of cool breezes on the hill: they will not be half as fatal, at the worst, as the damp of the valleys below; and they can soon be wonderfully modified by evergreen screens properly placed.

In the second place, make your location as near good neighbors as you can. It is a good thing to learn to live peaceably with our fellow-men, to help them, and to have their help at times. And the time is coming, I think, when neighbors will co-operate in work more than they do now, especially in removing all fences except those required to confine their own cattle.

Vicinity to school and church is a great advantage; though I believe the time is coming when much more of the education of the children, both intellectual and moral, will be done by parents than is now done. Still, the good school is the great thing now to aid in training our children; and the moral, religious, and social effect of the church, and the proper observance of the sabbath, are in no place more beautiful in their effect than in the farmer's home.

Having made his location, let the thought be, This is to be my home, — the home of my children, and perhaps of my descendants for generations to come: at any rate, it is my business, first of all, to create here the conditions of the happiest and best of human life for myself, and for those who come after me. Such thoughts and such efforts make a man more manly and noble; and in no place have they so much to respond to them as on a farm, for the farmer can ordinarily feel sure that his home, if wisely chosen, can continue a home for generations. In the city, the demands of trade sweep away the houses on whole streets. In the city, too, there are simply houses filled with families; but there is no family homestead to remain with all its sweet surrounding associations, as it is possible for the home to remain in the country for generations. And this possibility of country life is one of its greatest charms.

If the farm chosen has already a house upon it, the first question is, Is it in the right place? There is not one chance in twenty that it will be properly planned and constructed. That can be in a measure remedied. If it is in the right place, then begin to plan for it: if not, then select the true place, and begin at once to plan for that, if not for yourself, for the one who is to come after you. Let the permanent work of the farm, the planting of trees, the cutting of trees, and all other farm changes, have reference to the ultimate place of residence on the farm. Wise forethought will make a little labor of great future value to the place for yourself, or for sale.

Let trees be set that in time shall become grand oaks and elms to form stately avenues and noble clumps, so that the house, however humble, may have the advantage of these grand creations of nature. I do not advocate planting stiff rows of trees to shut the sunlight out of the house, nor the surrounding of your house with an indefinite thicket to keep the ground damp, and breed mosquitoes, as is sometimes done under the rage for raising trees and shrubbery.

But I would advocate the planting of long-lived trees that shall be grand in their growth, allowing air to circulate among them, and sunlight to reach the ground between them. If my ancestors had spared some of the grand old oaks which once grew on my place, or had planted some in proper places instead of seedling apple-trees that never did any good, and are now gone, the value of my place could have been doubled to me by fifty or a hundred trees properly placed. I have set them for those who are to come after me, and have gone over my grounds with my pockets full of nuts and acorns, planting them wherever I thought a tree ought to grow. If too many come up, the axe can thin them; and there is just as much need of cutting down a tree that is in the wrong place as there is of planting one in the right.

Then let the inside of the house be pleasant. It may be small and plain, but let it show signs of culture and taste. This the wife will care for, if she is not overworked, and is encouraged. Make the home pleasant to your children. Do not overwork them, but teach them to work. Dress them as neatly as your means afford. Give them advantages of school when you can. Allow them recreation; and, while you govern them, do not forget they are children, and that they have innocent tastes and desires which you have outgrown, and may therefore consider of no importance.

Make a childhood for your children. It is a protection against a hard and vicious manhood, — a source of joy and delight to them as long as memory shall remain.

It is superfluous, perhaps, for me to say more about the education of your children; but let me beseech you not to educate *off* from the farm. After the simplest rudiments of reading, spelling, and arithmetic, and even with those, see that your children are taught to study nature, to delight in plants and animals and stones and chemical changes, — all the things that daily meet them on the farm. If they cannot get these common, essential things in school, teach them yourselves. If you do not know them now, learn them. The farm furnishes the whole range of plants and animal life upon which one can spend a lifetime of study, and become an Agassiz in observation, if specimens alone were needed. And the farm and kitchen are a laboratory; and a boy or girl who understands the common changes going on in these need not go to the scientific schools to see experiments. Nature is making them daily; and the daily operations of the household are a series of experiments, only they are performed under the homely name of work, without being understood. Look after the instructions in your schools, and see that they leave out arithmetical puzzles in which most arithmetics abound, geography that nobody cares any thing about, or that will be changed in ten years, and grammar before the child is old enough to possibly understand what he is studying: in other words, save your children, if possible, from the terrific waste of labor too common in schools, and see to it that they know what will be a delight to them in field and house, and what will fit them to be useful citizens. Here stop with school education, unless your children, of their own free will, wish to go farther: in other words, send your children to school, and fit them to be citizens, but never *send* them to college. If they go there, let them go of their own choice; because they ought not to be allowed to go till they are old enough to choose for themselves. Sending a son to college is, in general, about the poorest thing a father can do for his son. The majority of those sent to college would be much better off at home in some honest employment. It would be better for them mentally and morally, and better for the world.

I might thus go on almost indefinitely filling out the programme of duties and grand possibilities of farmers' homes; but time admonishes me that I must stop somewhere, and an outline picture is often the best.

My desire has been to make such suggestions as shall lead the farmer's family to feel that theirs is the favored lot among men, and to encourage such life on the farm as shall tend to keep the children there. Enough of them will be drawn off by peculiar tastes (and especially by that false glare of business life), that look so grand in the distance, and by the peculiar honors of professional life. But it is a great gain, if in all their strife in the market, office, or legislative hall, they can have ever with them the sweet influences of an early life on the farm, and be drawn to it again as they find the emptiness of the prizes of money and honor which come even to the most successful in city life.

I believe the farmer's home will continue to improve, and that the farmer's home of the future will be a place of honest labor, of generous culture, — the best place in which to begin life, a good place to spend it, and the best place for it to come to a close. The only entailment of property we want, is the continuance of the old farmer's household from generation to generation in the same family, because it is a place worthy of preservation for its conditions of high physical, intellectual, moral, and social life.

Adjourned to Thursday at ten o'clock.

THIRD DAY.

The meeting was called to order at ten o'clock; and a vote of thanks was passed to the agent of the cotton-gin manufactory, and to the superintendent and others connected with the Bridgewater Iron Works, for the invitation to visit their respective establishments, and for the courtesies extended to the members of the Board and others during the visit this morning.

The CHAIRMAN. At a meeting of the members of the State Board of Agriculture, held this morning, a vote was passed tendering their thanks to the officers of the Plymouth County Agricultural Society, and also to the citizens of Bridgewater, for the courtesy they had extended to the Board, and for their attendance on the meetings generally.

It only remains for me to announce that the presiding officer of the day is Capt. MOORE of Concord.

Capt. MOORE. Gentlemen, the first business is a lecture by Mr. J. W. SANBORN of the New Hampshire Agricultural College.

ANIMAL GROWTH AND NUTRITION.

BY J. W. SANBORN.

Farming may have some truths of universal acceptance that are axiomatic in their nature, but principles of general acceptance among farmers it has few or none; yet laws undeviating govern in each department of husbandry. Those that control the growth and nutrition of animals are as undeviating as those that hold the earth in its courses. I feel confident, that, if the known laws and accumulating facts that bear on animal growth and nutrition were applied in Massachusetts, the annual saving would rise above millions of dollars. Excusing myself from a methodical discussion of the subject, I propose to review some of the laws of animal growth and nutrition, and state facts, accumulated from personal work and the work of others, that bear directly upon economical animal growth.

For my purpose, a review of some fundamental facts, for those who are not familiar with them, will be both suggestive and important.

	Lean Ox.	Fat Ox.	Fat Calf.	Fat Pig.
Fat	7.1	26.80	13.10	40.20
Proteine	15.8	13.70	15.30	11.00
Ash	–	3.90	4.50	1.80
Water	–	43.60	60.19	42.00
Phosphoric acid	–	1.56	1.64	.73
Lime	–	1.74	1.93	.77

The above table reveals facts in part commonly understood, and suggests the inquiry whether the calf, containing more proteine than fat, needs to be fed like the ox, containing twice the amount of fat that it has of proteine. The proportion of phosphoric acid and lime, of fat and proteine, to the water of the calf, indicates the progressive changes it must undergo before the period of maturity; and the difference between the calf and the lean ox or the pig leads us to the conclusion that animals so unlike should not be fed alike, and that the same animal should be nourished differently at varying stages of its growth. A mature animal is making neither proteine nor fat, but maintaining the action of digestive and vital organs and heat of body only. Again, we have the butter-cow and ox at work, the growing steer and the fattening steer. These considerations show that feeding is a complex science, requiring skill of a high order.

COMPOSITION OF FOODS.

If it is true that animals kept for diverse purposes, or those of differing stages of maturity, require varying proportions of fat, proteine, etc., can these materials, in practice, be given in the specific amounts desired? The following table is made up from analyses of the products that I have used in feeding, and from other sources, but principally from a compilation by Dr. E. H. Jenkins, in report of Connecticut experiment station. I have applied to these the German digestion percentages, and get the following number of pounds digested in a hundred pounds of American foods: —

	Proteine.	Carbo-hydrates.	Fats.	Ratio.
	LBS.	LBS.	LBS.	
Average 14 analyses of Timothy-hay . .	4.25	42.13	.97	1 to 10.4
Average 5 analyses of clover-hay . . .	5.00	39.26	.92	1 to 7.4
Average 4 analyses of Hungarian hay . .	4.49	41.05	.59	1 to 9.4
Average 9 analyses of low-meadow hay . .	3.34	35.79	.75	1 to 11
Average 2 analyses of oat-straw . . .	2.42	38.95	.86	1 to 17
Average 9 analyses of corn-fodder . . .	.75	7.10	.07	1 to 10
Average 4 analyses of cured corn-fodder .	2.82	43.47	1.03	1 to 16
Average 3 analyses of cotton-seed meal . .	35.57	12.79	14.35	1 to 1.3
Average 18 analyses of wheat-bran . . .	7.71	49.55	3.07	1 to 7.3
Average 9 analyses of corn-cobs . . .	.94	44.49	.11	1 to 47
Average 10 analyses of linseed-meal . .	24.72	22.90	10.51	1 to 1.9
Average 1 analysis of barley	10.58	60.75	2.11	1 to 6.2
Average 2 analyses of oats	7.32	45.12	3.85	1 to 7.3
Average 31 analyses of flint corn . . .	8.98	66.01	3.87	1 to 8.3

For the convenience of those who may wish to use the table of digestive amounts, I give a table made from such facts as have come to us from German work.

Digested from One Hundred Parts of following Foods.

	Albuminoids.	Carbohydrates, including Fibre.	Fats.
	LBS.	LBS.	LBS.
Good hay	63	60	39
Clover	51	59	45
Oat-straw	47	49	34
Wheat-straw	26	41	27
Rye-straw	49	42	30
Potatoes	64	95	100
Corn-cobs	43	51	28
Turnips	76	86	100
Corn-fodder	72	69	77
Fodder-corn	66	66	40
Barley	80	81	68
Oats	76	64	76
Corn	84	92	75
Linseed-meal	84	60	89
Cotton-seed meal	84	46	90
Wheat-bran	61	72	89

From the above table of amounts digested (for it is only the amounts digested that are given a value in feeding) it is seen that any desired amount of proteine can be supplied with the coarser foods. Thus, if corn-meal given to a calf failed to furnish the desired amount, barley, linseed, or cotton-seed would replace it to advantage.

Proteine, or albuminoids, finds its distinctive function in construction of muscle (lean meat), tendons, ligaments, and cartilage. No other portions of a food can fill its place, as they are devoid of nitrogen. Proteine forms fat, may support heat in case of necessity, and is assumed by many physiologists to be the source of force. The chief function of carbohydrates is to maintain the heat of the body. This is contended by many, with much show of reason, to be the source of force, and a possible source of fat, and in some animals a certain source of fat. The fats of food have their distinctive field in fat formation, but may be a source of heat, and possibly of force. The minerals, or ash, are the basis of the bony frame-work, and have other offices in animal organization. Time will forbid a consideration of this part of the question. I will simply add, that I have found it essential, especially with pigs, to add some source of lime to the food given.

The science of feeding, then, consists, not merely in giving hay or grain, but in furnishing the requisite amount of proteine, carbohydrates, fats, and ash, daily, in amounts sufficient for the growth of the animal, or the purpose for which it is kept. With this view, hay cannot be looked upon as a perfect animal food; for, while the maturing animal changes at each period his relative demand for proteine, etc., that of the hay remains fixed. I will give the following table, and illustrate.

The Germans recommend, from their experiments, the following amounts, daily, per thousand pounds live weight:—

	Proteine.	Carbohydrates.	Fats.	Ratio.
	LBS.	LBS.	LBS.	
Ox at rest	.7	8.0	.15	1 to 12
Ox at hard work	2.4	13.2	.50	1 to 6
Milch cow	2.5	12.5	.40	1 to 5.4
Fattening oxen first period . . .	2.5	15.0	.50	-
Growing cattle from two to three months old (weight 150 lbs.) . .	.6	2.1	.30	1 to 4.7
Growing cattle from three to six months old (weight 300 lbs.) . . .	1.0	4.1	.30	1 to 5
Growing cattle from six to twelve months old (weight 500 lbs.) . .	1.3	6.8	.30	1 to 6
Growing cattle from twelve to eighteen months old (weight 700 lbs.) . .	1.4	9.1	.28	1 to 7
Growing cattle from eighteen to twenty-four months old (weight 850 lbs.),	1.4	10.3	.26	1 to 8
Growing cattle from two to three months old (weight 150 lbs.) . .	4.0	13.8	2.00	-
Growing cattle from three to six months old (weight 300 lbs.) . . .	3.2	13.5	1.00	-
Growing cattle from six to twelve months old (weight 500 lbs.) . .	2.5	13.5	.60	-
Growing cattle from twelve to eighteen months old (weight 700 lbs.) . .	2.0	13.0	.40	-
Growing cattle from eighteen to twenty-four months old (weight 850 lbs.) .	1.6	12.0	.30	-

I find, as the result of much weighing, that seven steers, weighing five hundred pounds each, will consume, in round numbers, a hundred pounds of such Timothy-hay as we raise on our College Farm. By the table it will be seen that these steers need nine pounds and one-tenth of proteine daily, and forty-seven pounds and six-tenths carbohydrates. Our hay furnishes, by Professor Collier's analysis of it, five pounds and four-tenths digestible proteine, and forty-five pounds and five-tenths carbohydrates; which shows a lack of a small per cent of the requisite amount of the latter, and a very heavy one of the former. How shall the amount said by the Germans to be desired be filled? The great food of the East has been corn-meal. If now, to the hay-ration, twenty-five pounds of corn-meal is added, about eighty pounds only of hay will be eaten, and then we will have the sum of five pounds and eighty-six hundredths proteine and fifty-two pounds and eleven-hundredths of carbohydrates eaten, — an excess of the latter, and still a heavy deficiency of the former. We have given a carbonaceous food where a nitrogenous (proteine) food was needed. Looking down the table, we find cotton-seed meal rich in proteine; and using it, we find that but little over half of the quantity used in corn-meal, with the lessened amount of hay eaten by its use, will give the requisite amount of proteine, and very closely to the desired amount of carbohydrates. In practice, I find that a hay-ration alone gives me a growth, in average cases, of a pound a day, — certainly not a full nor desirable growth. By the addition of corn-meal to a hay-ration for growing steers, I have found less hay to be eaten by nearly the weight of corn-meal given; but, owing to the superior richness of corn-meal in digestible carbohydrates, an excess of carbohydrates has been eaten, and the slight increase of albuminoids, or proteine, in the ration, has been followed by only a moderate increase of growth, and yet less than desirable. These facts, coupled with the deductions of German investigators as shown by the last table, leads to the following statements of some of the accepted facts in the new science of feeding.

The first is virtually a repetition of what has already been stated, — the object for which an animal is kept cannot be best attained, unless a proper proportion of each of the constituents of a complete food is daily given.

Again: the most economical use of a food cannot be made where, although enough of each constituent is given, there is an excess of one; for that which is fed in excess is mainly thrown off in the waste of the system. It would be bad practice to add to a food already over-rich in albuminoids another food relatively rich in the same constituent. It will thus be seen that clover-hay for a growing steer of eight hundred and fifty pounds would not be so appropriately supplemented by cotton-seed meal as by corn-meal.

The relative value of a food when fed alone, as determined by German tests, is measured largely by the relative digestible amount of the deficient material present. Thus, if enough of a given food were consumed to furnish all the minerals, fats, and carbohydrates needed for the most rapid growth, and yet containing only one-half of the needed amount of albuminoids, no continuous rapid growth would be possible: economy would demand the addition to it of an albuminous food.

The reason why the coarser foods, so common with us,—straw, corn-fodder, and swale-hay,—are so lightly esteemed, is due to the deficiency of albuminoids; that the value of these coarse foods can be greatly enhanced by the addition of albuminous meals.

Looking down the table of amounts of albuminoids required for growing animals, it is noticed that a calf, in proportion to weight, requires twice the amount of albuminoids, daily, that is needed by a seven-hundred-pound animal. Again, looking down the table of amounts of nutrients digested in a hundred pounds of the various foods given, it will be seen that oat-straw, swale-hay, etc., are poorer in albuminoids than good hay; yet it is a popular belief that young animals will thrive better with poor foods than older animals. This belief is carried out in practice. The ratio of low-meadow hay in the table is one pound of digestible albuminoids to eleven pounds. The ox at rest only requires from one to twelve pounds; the eight-hundred-and-fifty-pound steer, from one to eight; while the calf needs from one to four and seven-tenths. Even the hay richest in albuminoids falls short of this material in sufficiency for the calf. This policy of feeding poor foods to young animals, without appropriate grain, should be reversed in the interest of economy. Farmers frequently assert that they know that their young animals do better on the poorer foods, eating it better than their older animals. This is perhaps true, and is due to the fact that young animals have a vigorous appetite, consuming more, and gaining more, in proportion to weight, than older ones. At the growing period it is a great mistake to rely upon a vigorous appetite to utilize inappropriate food: it is a sacrifice instead of an economy. I have known instances where a half-truth had been mastered; and with the poor foods albuminous grains or meals have been fed, but in amounts to correspond with the weight of the animal. In practice, we cannot bring our methods to scientific accuracy for various reasons; and it is a sufficient approximation in practice to say, that, if one were feeding calves, yearlings, two-year-olds, and three-year-olds, with one meal to supplement a coarse food, each animal would require substantially the same amount. As an illustration, I find in practice, that, in round numbers, eleven calves, weighing three hundred pounds each, will consume a hundred pounds of Timothy-hay. They would require ten pounds and fifty-six hundredths digestible albuminoids; while the hay will furnish but about four pounds and a quarter, making a deficiency per calf of fifty-six hundredths pounds daily. I find that five eight-hundred-and-fifty-pound steers will consume a little over a hundred pounds of hay. These five require, daily, eight pounds digestible albuminoids, but get in the hay only a little over four pounds and a quarter, or a deficiency of fifty-four hundredths pounds each. I find on account of their vigorous appetites, and for other reasons to be named, that it is desirable to feed our young stock, as well as older animals, on straw, corn-fodder, or poor hay; but, so long as they are kept for growth, always accompany such ration by an amount of grain quite uniform at varying ages.

It is a quite prevalent opinion that the larger breeds of fine animals are the necessary product of excellent foods, and are not the common animal of the farmer. The good animal is always the product of plentiful food; but in experimental inquiry I have noticed that the best animals were always like the young animals alluded to above (those of good appetites): I have thus found them the best feeders of coarse foods. It is the stinted animal that has the rebellious appetite. The larger and better beasts have good digestive and assimilative capacity. Successful feeding with the pig, steer, or cow, in New England, depends upon naturally good animals, with vigorous appetites and good digestive and assimilative powers. If a poor animal is to be kept, it might be questioned whether it will pay to feed on the high-pressure system. Certainly it can be overdone more easily with the poor cow than with the good cow. I have frequently noticed, in feeding-experiments with cows, that an increase of food is not always accompanied with a similar increase of milk-flow, With steers, the following illustration will show the importance of the good steer. Four two-year-old steers were fed in two lots. Lot 1, when meal was added to its former hay-ration, ate four hundred and forty-six pounds, and three hundred and thirty pounds less of hay than when meal was not fed. Lot 2 ate five hundred pounds meal; and this took the place of five hundred and eighty pounds of hay. The one used the meal, in part, as excess food; while the other lot used it to slightly more than replace the hay. The first lot gained very much more than the second. But from this partial digression I will return to the amount of food eaten by animals of differing ages, and briefly notice a most important law of animal development.

The older and larger an animal grows, the more food is required for a pound of growth. That young beef or pork is cheap beef or pork is receiving recognition, but not to the extent that its importance warrants. Possessing a less vigorous appetite, and perhaps digestion and assimilation not so active, and less surface for radiation of heat in proportion to weight, the steer and pig approaching maturity are now understood to make better use of a pound of food than younger beasts. Those who observe that young animals eat more than old ones in proportion to weight are correct; but it by no means follows that a proposition like the following is true, — a proposition that many still stoutly maintain: "My pigs are great eaters, and I know that my shotes don't eat much more, and are more profitable to feed." Such an error is destructive of all chance to feed economically either steers or hogs in New England. The heavy consumption of food by young animals is the very reason why they make better use of food. While the truth I am presenting is somewhat trite with the well-informed, yet its importance and non-observance in practice will warrant the presentation of a few facts to enforce attention to a law as immutable as those that control the movements of the planetary systems. In three experiments, calves weighing four hundred and twenty-five pounds ate three and three-tenths per cent of live weight daily, and required ten pounds of hay to make one of growth. Two younger and lighter ones ate more, and required only seven pounds and seven-tenths hay to make one of growth.

Five experiments with steers weighing seven hundred and fifty pounds gave a consumption of two and six-tenths per cent of live weight daily, and nineteen pounds and a quarter hay for one of growth. In a multitude of experiments with steers of weights varying from eight hundred to eleven hundred pounds, they would eat two and five-tenths per cent, or less, of Timothy-hay, and gain about a pound a day, requiring still more hay to make a pound of growth. The gain per day has not, in summer or winter, varied much with our animals of differing ages, but is generally greater with young animals; as a study of English lists of premium cattle, and those of the great cattle-show held at Chicago for a few years past, will make evident. The great cattle-show at Islington for 1879 revealed the following figures: Up to two and a half years of age the shorthorns grew two and six-hundredths pounds daily; from two and a half to three and a half years, one and seventy-nine hundredths pounds were made; and from three and a half to four and a half years, one and sixty-two hundredths pounds only of daily growth were made. At the last Chicago fair, larger growths were reported, but the same general facts were revealed. It will not fail to be noticed, that, while the larger animal grows less per day, this lessened growth is made upon an increased consumption of foods; as, in instances cited from our College Farm experiments, less hay to calves (seven pounds and seven-tenths) were required to make a pound of growth than would be required to maintain the existence of a thousand-pound steer. I find that such a steer will require as food of support, upon which no gain will be made, about eighteen pounds of hay a day, or over twice the amount required to make a pound of gain on young things. As it is by no means wholly a question of age, but more largely of increased weight, that cost of beef or pork increases as age and weight increases, the objection has to be met, that price increases with size, and that a certain size is necessary. This is all true; but it should stimulate to the breeding or selection of a type of cattle that will bring the highest market rates on the least weight. I have noticed the highest market quotations for steers carrying no more than from twelve hundred pounds to thirteen hundred pounds of live weight outselling others of from sixteen hundred pounds to eighteen hundred pounds. Again: steers can be put on the market at its highest rates on two winterings and September sale, but four years represents nearer the average of New-England heavy beef. If fatted at two years, instead of four, two winterings and keep for two summers are saved. As the average weight of such a steer for the whole period of life would be, in round numbers, eight hundred pounds, if sold at a weight of fifteen hundred pounds, the saving would amount to two tons and forty-five hundredths of hay, and two summerings, of a total value of from forty-five dollars to forty-seven dollars, hay being rated at fifteen dollars per ton. This is on the basis of facts taken by me, which show that food of support for an eight-hundred-pound steer is, in round numbers, fourteen pounds daily. If sold at two years, this food of support is saved from this time to four years of age, as all growth is made on food given above this amount. To the above facts bearing on this subject, a mass of facts could be added from personal weighings and from weighings of others; but it will suffice to fix the importance of attention to this matter. Whether the German table is right, or not, as to the relative amounts and kinds of nutrients needed at varying periods of animal development, it is certain that an animal when young needs more of the albuminoids than at the mature period, that a young animal needs more food than at a later age, and that a pound of food is of more value to the young animal than to one of mature age.

GERMAN TABLES.

The value to the world of German investigations of foods and feeding-problems is in no danger of being overvalued. Their conclusions have been embodied in tables and propositions. These are widely circulated, and very readily accepted. I recall an instance in German work where steers were fed in stalls of unlike temperature, and the rations fed; and their results were considered to be modified by this fact, and the conclusion drawn, that steers in the warmer stalls appropriated more food, and, in all probability, more of the carbohydrates. Our soil and climate are different; and consequently our herbage, as climate and soil affect herbage, is different. These facts will be seen very prominently, if comparison is made with the hays analyzed thus far in this country. Timothy, in nine analyses, shows six and sixteen-hundredths per cent of albuminoids; while nine and seven-tenths per cent is the reported average by German tables, ours being richer in carbohydrates than theirs. Our climate is colder, and the humidity of our atmosphere unlike theirs. The authorities quoted here have been those who have favored the view that albuminoids are the source of fat, force, and flesh; and these views color their conclusions, — at least this appears in much of their work. Hence we have tables of food-values based on four cents and a third as the value of a pound of digestible albuminoids,' while nine-tenths of a cent per pound is their rated value for a pound of digestible carbohydrates.

I do not wish to enter into detailed statements, to show that facts for Germany may not be applicable to America, but merely to suggest that some American review of their work is called for. Their tables of food-values, based upon the prices named, are mischievous in their workings here; for I find, following the advice of prudent men, so esteemed, many farmers are rating foods of the market on these tables. The samples of cotton-seed meal that have come into my hands contained a greater value of digestible albuminoids, on their basis, than the cost of the meal; so that the other constituents go for nothing. They (the Germans) have cotton-seed meal rated at three dollars and sixty cents per hundred pounds, hay being rated at a dollar per hundred pounds; yet cotton-seed meal can be bought for less than one-half this amount. This is an extreme case, but will serve to show the fallacy of the basis. Messrs. Lawes and Gilbert, in their celebrated feeding-trials, came to a conclusion opposite those of the Germans, — that the value of a food is measured more by its resource of available carbohydrates for the very simple and common-sense reason, that in English markets foods were easier obtained that were rich in albuminoids than those rich in carbohydrates. I think I can show, from five years of exact weighings, that it is easier and cheaper to get growing cattle to consume a sufficiency of albuminoids than it is to induce them to eat a plenitude of carbohydrates. The cheap sources of carbohydrates are in unpalatable foods, that will not be eaten in sufficiency. I have ventured these suggestions in the belief that tables are at present working a double mischief, — first, in fixing the almost exclusive attention of feeders upon the necessity of getting the albuminoids, while the practical weakness of this ration will be found in the lack of carbohydrates; and, second, in ascribing a false value to foods as found on the American market.

The economy of food combinations in practice is the final standard by which the farmer will measure the value of theoretical deductions. It must not be forgotten, however, that German conclusions, in many of their most important phases, rest upon actual trials.

I will state, before giving results, that they are for two-year-old steers, in lots of two; each lot of like weights and ages, and, for the immediate part at least, of like feeding, and, in most cases, of similar breeding. No attempt has been made at high feeding for rapid growth; the purpose being to put with the common coarser foods of New England — such as straw, corn-fodder, and swale-hay — such concentrated foods as the markets afforded, feeding in moderate amounts, as customary with farmers. These combinations have uniformly been fed against good hay. The purpose has been to note the economy of the combination, the amount of each of the nutrients in each ration, their comparative efficacy by the side of published German results. The following statements cover but a fraction of the trials made, and are given so as to show the results with as many foods as possible. When hay is repeated, it is for another set and year. More lots were fed each year, but many were repetitions. The facts to be given are considered sufficient to demonstrate the economy of the combinations, at least for moderate growth. Hay, good Timothy, cured, rated at $20 (as it is guessed that for 1881–82 this price may be an average for the Massachusetts farmer); cotton-seed meal, $32; corn-meal, $30; bran, $25; fish, $50; new-process linseed-meal, $32; blood, $45; meat, $45; clover, $20; straw, $10; corn-fodder, $10; and swale-hay, $10 per ton.

1878. — *For Seventy Days.*

Lot.	Feed.	Gain.	Cost per day.
		LBS.	
1	Swale-hay 35.6 lbs., and 4 lbs. each cotton-seed meal	167	$0.306
2–8	Timothy-hay 48.5 lbs. for lot of 2, average of 2 lots	124	.485
3	Straw 34.6 lbs., and 2.5 lbs. each corn-meal	120	.248
4	Straw 33 lbs., meat 2 lbs., and corn-meal .5 lb. each	81	.27
5	Straw 35 lbs., blood 2 lbs., and corn-meal 1 lb. each	133	.295
6	Straw 15 lbs., and clover 25 lbs. . .	150	.325

1879. — *For Forty-nine Days.*

Lot.	Feed.	Gain per day.	Cost per day.
		LBS.	
1	Timothy-hay 46 lbs.	1.40	$0.463
4	Straw 26 lbs., fish 2 lbs., and 1 lb. corn-meal each	2.75	.260

1880. — *For Forty-nine Days.*

Lot.	Feed.	Gain per day.	Cost per day.
		LBS.	
1	Timothy-hay 43 lbs.	1.41	$0.430
2	Straw 22.8 lbs.	(Loss.)	.114
3	Straw 19.2 lbs., and 3 lbs. each new-process linseed-meal	.87	.192
4	Straw 19.2 lbs., and 3 lbs. each bran .	.92	.171
7	Straw 19.3 lbs., and 3 lbs. cotton-seed meal	2.75	.182
8	Straw 16.6 lbs., and 3 lbs. each mixed meals	1.25	.165

Corn-fodder has also been tried quite extensively with favorable results. While the above figures may be safely left to tell their own story of economy, yet there are several facts that it suggests to which I wish to call attention. First, several of the combinations of straw and grain gave as good growth as the Timothy ration; and the straw is made, by the combined ration, as valuable as the hay. Take, for illustration, the fish ration: it gave better growth than the hay to the lot by its side. The fish and corn-meal in this ration cost thirteen cents. If we subtract this cost from the cost of the Timothy to lot 1, or forty-three cents, we have thirty cents; or it seems that twenty-six pounds of straw, then, did better business with the fish, and netted thirty cents, as a substitute for hay. In many trials with clover and oat-straw, I have universally got as good results from clover and straw combined as from Timothy alone: in other words, either straw is worth as much as hay in the ration, or clover is a better food than hay. The real truth of the matter is, both foods are worth very much more when fed together than either would be fed alone: at least, such has been the case with us at the College Farm. They are foods complementary to each other; and each prevents the waste of certain materials in the other, if it were fed alone. Clover is rich in albuminoids, and less so in carbohydrates than straw; while straw is poor in albuminoids.

Millions are annually wasted in New England from the hasty acceptance of palatableness as a measure of food-values. The figures given illustrate this. In 1880 lot 1 ate forty-three pounds of Timothy, and made a gain; while lot 2 ate but twenty-two pounds and eight-tenths straw, and returned a loss. This is no evidence that straw is good for nothing as a food, but is evidence that twenty-two pounds and eight-tenths of straw is not worth as much as forty-three pounds of hay.

From what has already been said, it will be seen that two steers, weighing seventeen hundred pounds, eat thirty pounds of hay daily for mere maintenance; and, had lot No. 1 received but twenty-two pounds and eight-tenths of hay, they, too, would have lost weight. But would that have been an evidence that hay is good for nothing but bedding? The truth is, that oat-straw, swale-hay, and like foods, have been sadly under-estimated, not merely because of their deficiency in albuminoids, nor because of indigestibility, so much as from the fact that they are unpalatable, and hence not eaten in amounts sufficient for growth. Whenever, by skill, the feeder gets them eaten, they each of them, to the extent eaten, become nearly as valuable as Timothy-hay. This same mistake in regard to palatableness has led us into other mistakes equally grievous; for instance, in regard to early-cut hay. But I have not time to trace the matter out in all of its relations, and will simply say, in relation to the time of cutting our grasses, that experiments at our farm leads me to deny the correctness, in most particulars, of prevailing views in regard to the proper time to cut hay or fodder crops.

When two sets of steers or cows have been changed from straw, corn-fodder, and clover, and lot 1 fed with hay cut in bloom, and lot 2 fed with hay cut fifteen days after full bloom, or when seed is well formed, those fed upon either lot will consume like amounts, and the latter make the better use of their food. Now, when I change from early to late cut hay, those thus changed will eat less than formerly; or, noting a case in point, from forty-three pounds of hay cut in bloom, thirty-two to thirty-five only were eaten when fed on hay cut subsequent to bloom, or little more than maintenance-fodder. This decreased amount eaten does not remain permanently so, but will remain less than forty-three pounds for perhaps three weeks. Not understanding the reason why, farmers, from noticing the effect of the decreased consumption, have drawn the unfortunate conclusion, that late-cut hay is deteriorated hay. This is a mistake, unless cut later than the formation of seed. These latter facts have not been introduced to discuss the broad question of changes in maturing crops, but to give a fact in opposition to the policy so frequently and tenaciously urged.

The instance given, which might be multiplied by those of like tenor, shows that the change from a palatable to an unpalatable food is followed by decreased consumption, the effect of which may extend over much time. The policy of change of foods to give appetite, etc., is all right, so long as one can change from an unpalatable to a palatable food, but not otherwise, as it will have to come about in a round of changes.

In making changes, there will come periods when animals will gain little or none; yet it is just now favorite advice to change food. By thus doing, the appetites of stock are kept unsettled.

MANURE-VALUE OF FOODS.

We cannot divorce the question of the manure-value of foods from feeding-problems. The central motive of the

New-England feeder is to obtain food for his crops. As well with us as with the English farmer, should the manurial value of a purchased food be the first consideration. A very much higher method of farming than is now practised by us is soon to be the rule. The great necessity will be to provide a heavy increase of plant-food. Two prominent sources of it are open to us, — the purchase of rich, manure-making foods, and of chemicals. I use both sources, but feel confident that the former is the cheaper source, — cheaper only when good animals are fed in economical rations, and matured young. Early beef, cheap beef; cheap beef, cheap manure; cheap manure, cheap crops. This moral, applied to pigs, gave me, during several seasons, twenty-six pounds and four-tenths pig for a hundred pounds of corn-meal, and twenty-nine pounds and one-tenth for a hundred of middlings. Here the product pays for the food; and in the middlings we have a food worth over twice as much for manure as the corn-meal. With calves, when weights have been kept from the first of feeding, the cost at three weeks of age was but little over two cents for a pound of growth, up to a weight of three hundred and fifty-two pounds; then the cost became four cents per pound of growth. The average cost was three cents and one-tenth per pound. They were then good veal, and salable for a considerable advance over cost. Yet, with grade Durhams whose accounts have been sufficiently well kept, I have found them, at two years of age, worth more than cost. With sheep and good butter-cows, well managed, better results might be expected. I only maintain that manure from animals can be got for attendance, which is cheap manure under a right system of food-selection. It is to this feature that I call attention. The fish used (see table) was the material, ground and dried, that is used for ammoniating fertilizers: therefore it was a manure that was fed. And inasmuch as only from five per cent or less (as in the case of potash) to about twenty per cent sometimes (as in the case of nitrogen only) of the food enters into the growth of a beast, and inasmuch as that portion of a food given that is thrown off at the lungs and skin has no assigned value as a fertilizer, it follows that eighty per cent and upwards of the food fed is found in the manure-heap. I paid fifty dollars a ton for fish (an amount which the market accepts as its value for a fertilizer), and yet received, when fed against hay, more than I paid for it as a food, and still had eighty per cent of my fertilizer left, or forty dollars' worth. This is "eating your cake, and having it." It is unnecessary to quote tables of manure-value of food, they have become so common; but by them it is seen that cotton-seed meal has a manurial value of over four times that of either good hay or corn-meal. To test the manurial value of cotton-seed meal of the ration given, I used at rate of a thousand pounds per acre, and received at rate per acre of forty-nine bushels and four-tenths corn, and sixty-nine hundred pounds stover. A section unmanured gave twenty-four bushels and nine-tenths corn, and twenty-four hundred and eighty pounds stover: cost of cotton-seed meal, fifteen dollars; value of excess growth over unmanured plot, thirty-five dollars. Messrs. Lawes and Gilbert fed a given number of sheep, over two acres of ground, with a ton of cotton-seed meal; by side of same an equal number of sheep, over a companion two acres, were fed a ton of corn-meal: they harvested in first season and first crop of second year fifteen hundred pounds more hay where cotton-seed was fed than where corn-meal was fed. Instances of the use of food for manures can be easily multiplied; and it can be shown, that, at market-rates of nitrogen, phosphoric acid, and potash, the amount of them in many foods (cotton-seed meal especially) is such as to make them often cheaper sources of the named elements of plant-nutrition than chemical fertilizers. The larger portion of the value of a food for manure (of those so valuable nitrogenous foods) consists in the nitrogen it contains; and, as the tendency now in New England is to esteem nitrogen less than formerly, the value of food-tables for manure is liable to be called seriously in question. Practically, I would not esteem foods to have quite the relative theoretical value now given, but substantially so; for, by the use of nitrogenous foods, I would ignore entirely the purchase of nitrogen in fertilizers, using purely minerals; the costly nitrogen being got for a nominal sum by feeding nitrogenous foods, using cotton-seed meal most, because at present, as a food for use with coarse fodders, and as a source of manure, it is cheapest. Let me repeat, that no New-England farmer is a skilful feeder who organizes his rations without reference to the quality of fertilizer his stock (manure-mills) are to make.

NUTRIENTS CONSUMED.

The Germans claim that a thousand-pound steer requires seven-tenths of a pound digestible albuminoids and eight pounds digestible carbohydrates daily, for maintenance-fodder; that practically it makes but little difference whence the source of these materials for actual amount digested. In tens of experiments, covering as long periods as those of Germans, and usually longer, I have uniformly received widely contradictory results of their views; so much so, as to make the matter of much moment. I will give tables of results. The foods, clover and fish excepted, were analyzed by Professor Collier. The analysis of the fish was known. Weight of lots eighteen hundred to eighteen hundred and fifty pounds.

Lot 1. — Feed, good hay.
2. — Corn-fodder.
3. — Corn-meal six pounds, and corn-fodder.
4. — Corn and fish six pounds, and corn-fodder.
5. -- Cotton-seed meal six pounds, and corn-fodder.
6. — Clover and corn-fodder.

In the first table will be seen a column of gains for the last thirty-five days. I have uniformly found, that, when a change is made from a food better eaten, animals lose apparently in stomach weight: thus, when a pair of steers are changed from fifty pounds of hay to thirty of straw and grain, there is a less full stomach; and for the first week, therefore, although the steer is really gaining in carcass weight, I consider the results of gain under column of thirty-five days fairer. Digestible amounts are used in the table ascertained by German digestion percentages.

Lots.	Albuminoids.	Carbohydrates and Fibre.	Fats.	Ratio, Albuminoids to Carbohydrates.	Cost.	Per 1,000 Pounds. Steer per day.			Gain or Loss per day.	Gain per day last 35 days.	Total Organic Matter eaten.	Org. Matter eaten p lt. per day.
						Albuminoids.	Carbohydrates.	Fats.				
	Lbs.	Lbs.	Lbs.			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	114.44	995.04	56.40	1 to 9.8	$12.63	1.29	10.71	.60	1.81	1.40	1,857	37.9
2	56.51	645.00	23 83	1 to 12.4	6.17	.63	7.40	.26	Loss .33	.45	1,233	25.1
3	74.73	842.07	20.62	1 to 11.9	9.14	.85	9.71	.34	1.00	.57	1,304	27.8
4	158 30	755.12	32.39	1 to 5.4	11.84	1.79	8.01	.55	Gain 2.75	2.28	1,486	30.3
5	143.09	640.31	63.50	1 to 5.5	9.52	1.61	6.06	.71	.58	1.74	1,384	28.2
6	101.39	818.75	25.20	1 to 8.6	10.88	1.12	9.03	.29	1.96	2.45	1,749	35.7

Second period of forty-nine days, straw substituted for corn-fodder; food otherwise the same.

Lots.	Albuminoids.	Carbohydrates and Fibre.	Fats.	Ratio, Albuminoids to Carbohydrates.	Cost.	Per 1,000 Pounds. Steer per day.			Gain or Loss per day.	Ate.	Gain.	Total Organic Matter eaten.	Org. Matter eaten p.h. per day.
						Albuminoids.	Carbohydrates.	Fats.					
	Lbs.	Lbs.	Lbs.			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	122.45	1,064.69	60.34	1 to 9.8	$13.56	1.38	11.46	.64	Gain 1.89	2,260	93	1,993	40.6
2	31.38	500.36	11.94	1 to 16.8	4.10	.35	5.65	.12	.65	1,272	32	1,115	22.7
3	51.51	605.96	24.31	1 to 12.9	7.34	.59	6.97	.26	1.08	1,088	53	1,208	24.6
4	132.61	531.24	32.86	1 to 4.5	9.65	1.33	5.34	.33	1.88	1,229	90	1,331	27.1
5	120.50	545.60	39.69	1 to 5.9	7.55	1.33	6.04	.38	1.00	1,213	49	1,458	29.7
6	111.48	930.33	19.44	1 to 8.6	11.63	1.18	9.84	.20	1.32	*1,489	65	1,966	40.1

* 800 straw, and clover 1,489.

Better gains have been received in other trials, but these cover the purpose in view. In the table it will be noticed (in the second period for forty-nine days, per thousand pounds live weight) lot 2 gained on thirty-five hundredths[1] of a pound of albuminoids and five pounds and sixty-five hundredths carbohydrates; while lot 4, given one pound and thirty-three hundredths of albuminoids and five pounds and thirty-four hundredths of carbohydrates, gained nearly a pound each, or a heavy per cent less of digestible material than is accepted as necessary to maintain existence without growth. In no case, for five years, has a combination of grain and straw failed to do much better than German and our authorities claim for the work of a given amount of organic matter. That it does make a difference whence the source of organic matter, this table, and all my experiments at our College Farm, show. Compare the results of straw with corn-fodder and grain, and straw against hay, and a very material difference is at once noticed. Thus for eighty-six pounds of organic matter in swale-hay and cotton-seed meal, seventy-six in corn-stover and cotton-seed meal, and sixty-five in oat-straw and cotton-seed meal, I have received substantially the same results, in the better combinations, as from a hundred pounds of organic matter in Timothy-hay. These facts seem so contradictory to German work, and (in case of straw and grain against hay) so contrary to what would be termed common sense, and (if true) of such vital importance in the economy of the farm, that I am led to say virtually, again, that for five years, in accurate work each year, in every instance the proper meal with straw, and in fact any meal with straw, has done better than the German work upon which Americans now rely would allow. When I say German work, I mean the conclusions they draw from actual trials. From such of their trials as have come to my attention, I find occasionally the full results given. When mostly straw and grain are fed against a pure hay-ration, results are given that agree somewhat with mine; but they are either unnoticed or misinterpreted. That the value of straw is much misunderstood, let us all agree, or in your own interest put my faith and work to a new trial. The causes of the value of these combinations, I am now in further trials seeking, but will only say that I am tracing one that partly meets the difficulty of the facts.

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[1] The amides shown by the analyses are, as by old methods, estimated as albuminoids; so that the actual albuminoids consumed was less than shown by the table. As many of the German foods contained a heavy per cent of amides, their tables are subject to the same, probably greater, discount.

An application I would make of the foregoing facts is to increase the area tilled. Massachusetts raises an average of a ton of hay per acre. It will not weigh out a ton in spring. A steer of a thousand pounds, consuming twenty-five pounds daily, would winter eighty days from an acre of ground. With rotation of crops in broad culture, the corn-crop would soon be made sixty bushels per acre, and three tons and a half stover. This stover would, by my results, keep a steer two winters. Sell corn enough to procure the cotton-seed meal to go with it, and thus introduce a manure food worth four times as much as the corn, and leave corn enough to fat two pigs weighing over two hundred and fifty pounds each, live weight. This statement is based upon three years' results of corn-fed pigs, and results from the use of stover. That the old system of intensive culture, or narrow areas well tilled, with hay prominent, has not been satisfactory, none need be told. Chemicals and purchased foods allow of broad culture, and open greater possibilities to our farmers. Such a system is now pursued on our College Farm with greater profit than I could obtain by the old system. I invite your thoughtful criticism of the change.

RATIONS FOR COWS.

The length to which this subject has been extended forbids the entering into the review of the interesting facts and theories that have come to us from across the waters, some of which an accumulation of facts in my experience at our College Farm would not seem to fully sustain. I wish merely to call attention to a phase of the question that every good dairyman understands, — that while a milch cow must have an abundance of albuminoids and carbohydrates daily, yet we cannot, as with the steer, select these nutrients from any source indiscriminately. When butter is sold, the factor of quality comes in; and the difference in price of good and poor butter is so great, that the food that within certain limits produces the best butter is the most economical. Thus we have, in feeding the cow, the twofold purpose, — to accomplish the forming of a ration that will give a sufficiency of each nutrient of foods, and that will furnish butter of good quality from the cheapest foods that will maintain that quality. In relation to the latter points only, will I now say a word. Corn-meal I find to be a most excellent food for both quality — as regards texture, color, and aroma — and quantity, when fed in right combinations; but its lack of albuminoids in sufficiency makes it necessary to use an albuminous food with it. Bran added affects injuriously the quality and quantity. Oat-meal and pease will maintain the quantity better, but the quality still suffers. Palmer-nut meal is a great butter-producer, but the quality is not right: neither have I been fully satisfied with the brief trials of oil-cake meals. For both quantity and quality, the equal mixtures of corn and cotton-seed meals have proved most satisfactory. The same problem that I found with my steers I find with the cows, — that a cheaper and yet satisfactory ration can be made with other combinations than those in which hay is prominent. I have found corn-stover and fodder-corn excellent butter-producers. The value of our corn-plant to the dairyman is not easily overestimated. With stover, clover, and straw, corn and cotton-seed meals, I find a fodder cheaper than hay and grain effective, and producing a good quality of butter. A change from the first ration, without the clover, into early-cut hay alone, was followed by a marked decline in milk-flow. I should not care to assert that the texture of the butter from the ration named, that I am now feeding, is as good as from properly-cut hay, and corn-meal. The quality of butter is so varied by various foods, that it requires an expert to detect the nice variations in the quality of butter. Butter from the rations named is of good color and aroma; and I do not as yet know that it is not in all respects as good as from hay.

ENSILAGE.

The advocates of this recent system of preserving fodder represent it to be of the first importance. They offer results for our acceptance, that they claim to be a full realization of hopes extravagant beyond sober calculation. Influenced by these widely-current statements, much farm-capital has already been invested in silos, and large amounts will probably be further withdrawn from agricultural resources for the same purpose. Farmers would not make such a sacrifice of their slender means, except in the belief that a discovery had been made of great value in agricultural progress. With this view, I propose to carefully consider the merits claimed for the silo system; and, in doing so, I will ask some latitude to notice facts that bear but indirectly upon the subject.

It is claimed that the silo enables us to grow fodder-corn to a greatly-increased extent, and that without this method of preservation no such quantities could be grown and cared for economically; secondly, that, by the old process of air-drying, there was a loss of value, and that this is avoided in the silo; thirdly, that the silo affords green food for winter, and that such food is more effective than the same food when dry; fourthly, that the fermentation in the silo renders food more digestible; fifthly, that this fermentation warms the food to blood-heat, and thus further assists the powers of the stomach; sixthly, that experience proves it to require less food to produce a pound of increase, or a given quantity of milk, when ensilage is used. I wish to consider each point, not in a controversial spirit, but with intent to bring out the facts. Of course, every farmer hopes that all of its claims may be substantiated; yet, whatever our desires may be, we must make a cool search for the facts, and accept them.

COST OF SILOS.

Several men present who have silos are represented as working farmers. Each gives me figures of cost that show, for each ton of silo capacity, a cost of three dollars. If we assume an acre of fodder-corn to yield twenty-five tons, it will cost seventy-five dollars for silo-room for each acre of ground, the least interest of which is four dollars and a half; and we have, in addition to that, machinery for handling and cutting up. This outlay is more than the average value of good land, and requires more capital to make pits than to buy the farm with buildings on it. What would seventy-five dollars per acre of stock, tools, chemicals, etc., do for a farm? Yet the pit itself is non-productive.

In answer to the claim that it enables the growth of more food per acre, it may be said that no known facts warrant the statement, while some controvert it. What quantities of fodder-corn are actually raised? In consulting a dozen good farmers, on farms better than the average, only one claimed to have raised twenty-five tons of green fodder; several "guessed" that they had twenty tons, and called it a good crop; more than one-half thought they got but fifteen tons. Desiring to put it at its best, we name twenty-five tons as all the probable average product. Of this, twenty-one tons and a half are water. As three tons and a half of dry matter of hay would carry three-fifths of a ton of water, we find we have to handle about twenty-one tons of water in the green corn-fodder; or, if field-cured as field-corn, this dry matter would carry only a ton and a sixth water, or twenty tons and a third needlessly.

An owner of a silo represented, at yesterday's session, that it cost him one dollar per ton to put his fodder-corn into his silo: therefore twenty dollars and two-thirds is paid for carrying water. Deducting this from the value of the three tons and a half of dry matter of fodder, and a very serious per cent of its value is paid for handling water. Again: this three tons and a half of dry matter I have grown this year in clover at much less cost per acre. Two gentlemen present represent that they have grown, the past season, four tons of Hungarian grass per acre (a crop, like corn, adapted to dry lands). We have in these crops as much dry matter per acre as in the corn. They are large crops, it is true: so is twenty-five tons of corn-fodder; and, while I believe more of corn-fodder can be grown per acre than of any of the crops named, yet the cost of it, and especially the expense of putting it into the silo, does not show any economy over the other crops named. Thus it appears to me that the silo does not allow us to extend the area of our fodder-crop. I have, for the past year, grown twenty-two acres of field-corn on each of two farms, and find no difficulty in caring for it. Here you have the same plant grown thin enough to mature its ear. In either case, the capacity of the corn-plant to extract nourishment from the soil is reached,—the one reaches maturity, the other not. The first has more of the albuminoids and less of less valuable amides. The first has more of sucrose and less of glucose. Several years of exact work with scales have shown me, that, in the stage of growth of field-corn at beginning of glazing, the hay-crop is larger per acre, and per pound more valuable, than that earlier cut. Three years' feeding-trials with corn-fodder convinced me, that, as the fodder-crop matured, its feeding-value increased. Mr. Cheever, after years of trial by all methods of raising fodder-corn, told you that he is now best satisfied with raising it for a soiling crop, by the field-corn method. My own experience agrees with his, and convinces me, that, where I can raise twenty-five tons of fodder-corn, I can raise sixty bushels of corn and three tons of fodder. The fodder-corn will contain three tons and a half of organic matter; the field-corn, in round numbers, four tons strong in corn and stover. Those whom I consult say they can raise two bushels of corn and its fodder where they raise one ton of fodder-corn. On this basis there would be no practical difference in the amount of dry matter raised by either system; and the mature corn, I assume, will be grown and handled the cheaper, and be of greater feeding-value.

DRYING WASTES — SILO PRESERVES.

Professor Goessmann, who is recognized as authority upon any matter he will express an opinion about in agricultural science, very fully denied both of these propositions at the Massachusetts Board meeting for 1880: hence I will not discuss the matter, but merely make a statement or two. It seems, by such trials as have been made by the Germans, that hay may be so made as to lose nothing in the process; but at the same time they present facts to show that by over-drying, or making under bad conditions, hay may lose mechanically by the shattering of its leaves in handling, and, as Dr. C. Brimmer says, in case of clover rapidly drying, a loss of both proteine and carbohydrates may occur. While it must be admitted that a loss by the former if not by the latter cause may occur, yet in our favorable climate that loss must be very slight. Still from rains and unskilful practice there may be some loss; but there is not that loss from the evaporation of juices that those unacquainted with the facts assert. Such loss, however, is more than offset by the loss from fermentation in the silo. The character of the changes in fermentation were set forth by Professor Goessmann, a statement of the loss accompanying it. The facts of the trials in Austria and in France are familiar to the public. Professor McBryde, of the Tennessee University, weighed in and weighed out his material, and lost four hundred and fifty pounds per ton in an earth-silo. I am convinced, however, that the losses from the earth-silos do not give a fair basis of loss for a good cement-silo. Comparing Professor Cook's analyses of nine samples of ensilage from nine cement-silos with the average of a sample of fresh corn-fodder as by Connecticut experiment station report, neither the organic materials nor the ash (this ash hardly more than in green corn-fodder) warrant the belief that the losses are so great, in a good, well-managed cement-silo, as have been quoted from the earth-pits; yet the evidence, so far, warrants the belief that the loss in silos is as much or more than the vicissitudes of open-air curing will give. From some facts before me, I find that hay exposed to brief showers does not make so great a loss as is usually apprehended. If but partly dried, or in heaps, the loss would be still less.

GREEN FOODS BETTER THAN DRY.

Mr. Lawes, in a recent article to an American publication, takes a contrary view, and questions whether a green food for winter is the best. He expresses the opinion that Americans are expecting too much of ensilage, and gives us to understand that he has little faith in it. German work is explicit in the statement that a food properly dried is as digestible as the same food in a green state. In three seasons' work, I have fed from eighty to a hundred pounds of fodder-corn against twenty pounds of hay, and even when the latter amount has been used, the hay has given the best results; yet it is claimed that from forty to sixty pounds of ensilage are equal to twenty pounds of hay. I will give a partial statement that represents the tenor of my results with corn-fodder fed against hay.

Four were cows, fed in lots of two each, in August. Prior to test, lot 1 gave, on pasture-grass, 30.17 pounds milk daily. Prior to test, lot 2 gave, on pasture-grass, 30.60 pounds milk daily. Test or second period, lot 1 gave, on grass and a hundred pounds fodder-corn, 30.44 pounds milk daily. Test or second period, lot 2 gave, on grass and twenty pounds hay, 32.44 pounds milk daily.

In the above, five pounds corn-fodder were fed against one pound of hay, and the hay gave the best results; whereas we are told two or three pounds of corn-fodder ensilage are equivalent to one pound of hay. I have a mass of facts regarding corn-fodder, from which the corn has been harvested, fed in winter against hay. The elements of critical comparison do not exist between this corn-fodder and hay, and green fodder-corn and hay; yet the amount and character of the dry matter fed in either case, and the effects of either source in milk and butter product, when compared with the same standard of dry hay, make it certain to me that little, if any thing, is to be credited to corn-fodder, because green fed.

If it will be allowed as having an important indirect bearing on the subject, I may say that for four years I have yearly, to steers and cows, fed roots (green food) in winter. The weight of cows, milk-flow, butter-product, and hay eaten, have been taken for comparison with and without roots. The weight of steers, and the effect of a ration of roots added to hay on the amount of hay eaten, have been taken. Thousands of weighings may be summed up in the phrase, "A pound of green food in form of roots has been no more effective than in hay." The statement will bear being put a little stronger.

FERMENTATION MAKES FOOD DIGESTIBLE.

This is a claim by some admitted to a certain extent; but, as any fermentation that increases the digestibility of otherwise indigestible parts must be accompanied by loss, it is not worth pressing. The amount of indigestible matter found in one hundred pounds of green fodder-corn is four pounds; but a small fraction of this will be made available by fermentation. As covering the results of several trials that have come to my attention, I will quote the conclusions of a joint trial of U. Brewster and others: "Souring and fermenting cause a loss of raw material; boiling, scalding, and steaming diminish the digestibility by the large amount of water; steaming of hay diminishes digestion." It seems that the animal system has been arranged very happily to take care of its natural food, and that no system yet tried aids economically the animal digestive laboratory. Lactic acid is liable to be, and in fact is, formed largely in silos.

In German trials it was found that lactic acid exerted a solvent action on the bones of the sheep and goats, especially the younger ones. So far as I know, this fact may be more curious than useful; but it may be noted, that already two cases are reported where ensilage has nearly destroyed the cream-products. That an excess of acids may have some such effect has been noted with other foods.

WARM FOOD.

Ensilage is cut up and loosened over night: fermentation takes place, and warms it. This is claimed as an advantage. A moment's reflection will show that such heat is produced at the expense of the food itself, — by its destruction; and that it would be better to feed it cool, and allow the changes that warm it to transpire in the body, and so help warm the beast: for the formation of heat from food outside of the body is attended by loss of heat of the food by radiation into space, which is lost to the beast.

EXPERIENCE PROVES ITS ECONOMY.

1st, Many of the stories told are physical impossibilities. There are some in print, where the results claimed are such as to require more albuminoids than the food contained.

They would not deserve mention, were they not thoughtlessly allowed to influence opinion.

2d, Others have done in this way, — weighed their animals eating dry food at the time when they were thirsting. Eating ensilage they get all the water needed. The next weight is honestly taken, and found at the end of a month to give a gain of a pound a day, which may in reality be a loss. Thus I find that a steer of eight hundred to a thousand pounds' weight will drink fifty to sixty pounds of water a day. The first weight was without drink: the last, with drink; because, feeding on ensilage, they drink as they eat.

3d, It is said that ensilage costs but two dollars a ton, and that a cow consuming sixty pounds, and five pounds of cotton-seed meal, — costing in total thirteen cents and a half daily, — will do as well as on thirty pounds of good hay costing thirty cents, if not better. The fallacy of rating the hay at a handsome profit for raising, and ensilage at less than cost, ought to be apparent to all. A captivating fallacy can be met in no better way than by similar illogical reasoning. I published the cost of a sixteen-acre field of corn; and, rating the corn at thirty cents, the stover cost two dollars and eighty-five cents per ton.

As the result of weights for long periods, not only of fodder, but of cow and milk, a change from corn-fodder and straw and 2½ pounds each of corn and cotton-seed meals to hay was followed by decline of milk-flow. My cost of ration then was 22½ pounds stover and straw at $2.55 per ton, 3.2 cents; 2½ pounds of corn meal at 30 cents per bushel, 1.34 cents; and 2½ pounds cotton-seed meal at $30 per ton, 3.75 cents: total cost, 8.29 cents. If this is not fair comparison, will not some one point out the fallacy? Suppose we get up a little revolution in favor of rotations and air-dried crops? But, as none of us are working for cost, I presume that no one will get excited in the matter, and hence no caution from me will be necessary. I may say that I have seen results from most of the silos of the county for the years 1880 and 1881, and have seen no trial above criticism that is very favorable. Professor Cook of the New Jersey Experiment Station made an accurate trial, so far as it went, and is decidedly unfavorable to all claims made regarding the peculiar feeding-value of ensilage. Animals fed, cows. First period, given 2.5 pounds proteine, .5 of a pound fat, and 12.5 pounds carbohydrates, each animal, and in digestible amounts.

Yield, lot 1. — 48.6 pounds milk.
2. — 49.7 pounds milk.

In the second period, 100 pounds of ensilage were given to lot 2, in place of 40 pounds turnips, before eaten; rations of each otherwise the same.

Yield, lot 1. — Second period, 51.3 pounds milk.
2. — Second period, 48.9 pounds milk.

The third period of five weeks, lot 1 was fed as before, and lot 2 fed 120 pounds ensilage, each cow, and 5 pounds cotton-seed meal. This furnished as much of each of the nutrients as lot 1 had. It was all eaten.

Yield, lot 1. — Third period, 48.4 pounds milk.
2. — Third period, 48.2 pounds milk.

Here are exact facts, and in agreement with just what scientific men have claimed; and yet careless observation will no doubt go right along laughing at science, and claiming all by guess. One well-taken fact is worth all the world's guessing. As I have ever been, without exception, engaged in economical farming, I may fairly take exceptions to the loose methods of arriving at results by those engaged in the same efforts.

Professor McBryde of the Tennessee University has gone through an elaborate set of experiments too full to admit of review. He fed ensilage alone, with the following result, for thirty days: —

Amount Fed per One Hundred Pounds Live Weight.	Weight of Steer.	Loss.
LBS.	LBS.	LBS.
40	825	20
50	965	8
60	900	25
20 (hay)	687	13 (gain)

A bad showing, and worse than I came out with by straw, and evidently worse than my results with stover alone, from which corn was taken; for twenty-three pounds and a half per day made a gain of fifteen pounds and three-quarters in thirty-five days.

In the following experiments, grain and ensilage were apparently cheaper foods than hay and grain. I have already shown, that, with dry foods, straw, or stover and grain, were more economical than hay.

With McBryde, three steers gain fifty pounds and two-thirds each, in a month, with a feed of forty-eight pounds of ensilage and six pounds and a quarter each of cotton-seed and other meals. As no analysis of his ensilage is given, I can only guess, by the heavy loss in weight from his silo of the previous year, that it must have contained twenty per cent or more of organic matter; which would give nine pounds and eight-tenths in ensilage, and about five pounds and seven-tenths in grain, or a total of fifteen pounds and five-tenths each. My ration of organic matter for a gain of forty-one pounds and a quarter for a month contained fifteen pounds and two-tenths organic matter per day per thousand-pound steer; but it was fed in a colder climate. My stover, of course, had the richest part in the ear taken off; and the ration contained less than half the amount of grain, and gave a little less of gain. The elements of exact comparison are not here; yet a candid comparison of the results will show a difference, in the efficacy of the food, in favor of my ration. With oat-straw, my rations contain much less organic matter than those of McBryde's, or over twenty per cent less; and this straw is robbed of its richness by grain, threshed out, and supplemented by less than one-half the meal that the ensilage had. It is the

FOOD COMBINATION

that is giving to ensilage most of the credit that is said to belong to it, but erroneously credited to it. Ensilage and grain very likely are cheaper than hay, but are not probably so cheap foods as either stover, or straw and grain. They have given a misapplication to a valuable fact that they do not see, and credit to ensilage, as such, the glory that belongs to the union of two foods, and that might more easily be had, and valuable capital saved for farm improvements.

That ensilage may not have a place in our agriculture, I am not prepared to say, but judge that it will be a modest one. To those who will build only on high hopes, it is safe, I feel, to advise them to wait.

Mr. PHILBRICK. What kind of fish did you use in those experiments where you fed it to cattle?

Mr. SANBORN. I procured it in New York. It was ground fine, like meal. I suppose it was the refuse after the oil was pressed out, the same material from which the fertilizers are made.

QUESTION. Could you raise enough dry fodder on one acre of the best land you ever saw to supply six cows a year?

Mr. SANBORN. It may be possible, but I do not think it is probable just yet. I should want to feed grain with it.

Mr. PAUL. I want to ask whether you have fed fish and blood to swine.

Mr. SANBORN. I have fed it to some extent to swine.

Mr. PAUL. In what way could it be prepared so that they would relish it?

Mr. SANBORN. All that has to be done, is simply to dry it, so that it will not ferment in the bag. This was dried, and ground fine, like meal, so that it would keep.

Mr. LANE. Do swine eat it readily?

Mr. SANBORN. The odor of it is offensive to them; but, by mixing a little with meal, you will in time get them to eat it. You do not want to feed it clear, because it is wasteful to feed it alone.

Mr. GRINNELL. Do you really propose that we shall buy dried fish, and feed it? or do you state that as something that is possible?

Mr. SANBORN. My opinion is, that dried fish, at the price foods are selling for to-day, is a profitable food to purchase to feed with your coarse fodder. It has given me a profit for use, and left three-fourths its cost in manure-heap. If you have to buy food, you want to buy that which is cheapest, all things considered; and just now I should buy cotton-seed meal, which runs with me from thirty-eight to forty-five per cent of albuminoids. It is the most profitable food I can find to mix with my coarse fodders. It has usually been twenty-five dollars a ton by the carload.

QUESTION. How high may it be and still be called a cheap food?

Mr. SANBORN. It depends upon the fluctuations of other products. Hay and other crops are higher than usual this year; cotton-seed meal rises and falls with the other things: and you want to keep that ratio. At twenty-five or thirty dollars a ton, I would rather buy it than any other material I know of. Fish is usually forty-five or fifty dollars a ton: I think I paid fifty for that I bought. I should prefer to buy cotton-seed now than to buy fish, although I should consider fish would be profitable food to put with coarse fodder. I may say, that, in those experiments that I made, there were tests of cotton-seed meal against oil-cake, bran, and other foods. The new-process oil-meal has given me the most unsatisfactory results.

Dr. WAKEFIELD. Is there any difference as to the amount of labor required to get cattle to eat either cotton-seed meal or fish?

Mr. SANBORN. There is no great labor involved. You stir the fish up with a shovel in their meal until they learn to eat it, and then put in a little more, until you get them to eat all you desire.

Mr. GRINNELL. How does the new-process oil-meal compare with other feeding-materials?

Mr. SANBORN. Theoretically it should be good food; practically, when I tried it, it did not give me so good a result as I got from cotton-seed meal. The result, on the whole, was unsatisfactory.

Mr. GRINNELL. Do you know what the preparation is?

Mr. SANBORN. The oil has been extracted down to about three per cent.

QUESTION. Do you consider it harmful to cattle?

Mr. SANBORN. No, sir. I fed mine for a term of one hundred days. The simple fact was, that they did not do so well when fed with that as they did with other combinations. They consumed nineteen pounds of straw and six pounds of oil-meal per pair, and they grew constantly during the period.

QUESTION. You have, perhaps, convinced us that we should abandon the raising of hay-crops, and turn our attention to raising grain-crops. You have shown us how much more can be done with an acre of corn, as compared with the results of the crop from an acre of grass; but you have said nothing about the relative cost of producing the two crops: does not that come in as an important element?

Mr. SANBORN. Certainly it does.

QUESTION. Taking into account the labor, is there so much more advantage in raising grain-crops than hay-crops?

Mr. SANBORN. If we should go into the discussion of cost, there would be so many elements brought in that it would be interminable. To make a short statement, I will say, that, since I have changed my practice, the actual net revenue of the farm has been larger than at any time previous. The income is increasing each year with the increase of tillage.

Dr. WAKEFIELD. Will you state to the audience what you consider the cheapest food to make the best butter?

Mr. SANBORN. I had some cows that were in lots of two, consuming about forty-five pounds of corn-fodder and straw mixed, and five pounds each cow of cotton-seed and corn meals. I put four cows upon hay without any grain, fifty pounds of hay costing thirty-seven and a half cents. The mixed food cost twenty-nine cents, — eight cents less; and the milk-flow, in exact figures, went down on the four cows ten per cent. I find the cheapest food for a good quality of butter is corn-fodder. The cheapest combination I can make to maintain a good quality of butter is corn-fodder, cotton-seed and corn meals. I give them a foddering of straw every day.

Dr. WAKEFIELD. No hay?

Mr. SANBORN. Let me say that I always, when I have clover-hay, put in a foddering of clover-hay. I would never farm without clover-hay. I do not put in any English hay.

Recess until two o'clock P.M.

AFTERNOON SESSION.

The meeting was called to order at two o'clock by Capt. MOORE.

The CHAIRMAN. The subject of the lecture this forenoon was "Animal Growth and Nutrition." An incidental subject closely connected with it is the silo. That subject is now open for discussion. We would be glad to hear from any one who has had any practical experience, and who desires to speak upon the subject.

Mr. WARE. I would like to say a few words upon the subject of the lecture this forenoon. It is well known that for many years we have been discussing the subject of plant-food, and we have learned, that, to furnish suitable plant-food, we must have certain elements in proper proportions to meet the demands of the plant; and we have been led to inquire from that whether the same principles might not apply to the feeding of animals, for it is true that the principles which govern vegetable life are in a great measure applicable to animal life: therefore it is necessary to know how we can feed our cattle in the most economical manner to secure the results that we require. The lecture of the morning was upon that subject: and to me it was exceedingly interesting and valuable, because it came from one who, I understand, is a man of scientific attainments, who has been very careful in his experiments; and he has given us substantially the results of those experiments. That is what we are after. What we want to know is, How can we feed our animals in the most economical manner? and how shall we get the food in the cheapest and easiest way? The subject of the different kinds of food, and the mixtures of food, has been very carefully gone over; and the results seemed to be very satisfactory. He has indicated several sources of food, new to many of us; and no doubt they may prove very valuable suggestions. That is of great importance; and such a subject cannot be discussed, of course, without touching upon the subject of ensilage. That interests us exceedingly. Our hopes have been raised very high, and from time to time those hopes have been more or less disappointed. Last year Professor Goessmann, whose opinions we respect, gave it a blow that staggered me in my opinion of ensilage; for I must confess I had very high hopes of it: but afterwards, by further investigation, I learned that his statements last winter were based upon analyses made by German chemists about thirteen years ago of ensilage that was taken from silos built upon the old plan; that is, covered with earth, without any cutting up or any preparation. I have no doubt that ensilage from such a silo would indicate as great a loss as was stated by Professor Goessmann. Such analyses are really worth nothing, unless they come to us in such shape that we can depend upon them as comparing the nutritive qualities of ensilage with the green fodder. I claim that instead of going backward, and adopting the old system or the old plan of ensilaging, where all this great loss has been proved to exist, we should go forward and onward, and adopt the best system of building silos, and the best method of making ensilage; and I believe, that, when we are able to present careful analyses of ensilage preserved in that manner, they will show very different results.

Now, I think it is right and just to consider all systems of producing fodder in a fair way. If we have a theory to set up, let us sustain it and establish it as well as we may; and, when we are discussing other theories and other methods, let us discuss them with fairness, that we may, as practical men, judge between the two systems. Now, it is unfair, in reckoning the cost of ensilage, to say that the expense is so great that no farmer can afford to use it. Why? Because, as was stated here this morning by the speaker, the cost of a silo that would hold one hundred tons would be four hundred and fifty dollars, and adding that to the cost of growing your crop and cutting it would make the cost of your ensilage very high. So it would: but, when you build a silo properly and substantially, you build it for all time; it is a permanent structure. You might with just as much propriety add to the cost of your English hay that you feed to your cows through the winter the cost of the barn that you have built to hold your cattle and your hay, as to add the cost of your silo to the cost of your ensilage for that year: therefore I say that position is unfair.

Again: in considering the statements, "the exaggerated statements" as they were called, concerning ensilage, I say it is unfair to take an instance (the only one that was mentioned) of a man who had fed his cow upon forty pounds of ensilage, and, I think, three pounds of cotton-seed meal, and obtained sixteen quarts of milk per day. The albuminoids contained in that milk would be more than would be contained in the ensilage and the cotton-seed meal, showing an absurdity. Of course, it was expected that the production of that quantity of milk would draw upon the flesh of the animal, which no doubt it did. Now, why take that instance of forty pounds, when every man who has fed ensilage, and all the authorities who have written upon it, say that sixty pounds is the amount requisite to feed a cow, with a proportionate amount of cotton-seed meal? That would change the whole state of things entirely. We may say to ensilage and to the silo, "Down, down!" but it will not down. It has been too well and firmly established, not only in Europe, where it has been largely adopted (particularly in France), but in this country. In Massachusetts, in New Jersey, in New York, in Vermont, it has been tried thoroughly by our very best and most progressive farmers; and they all declare that it is a success. You cannot argue it down. You cannot put it down by bringing up an instance of one cow fed upon two-thirds of a fair feed per day, and making that the standard. I say such an argument is unfairly put, and the claims of ensilage cannot be met in any such way.

We want to learn how to feed our stock in the most economical manner. The advantages of dry food have been presented to us, and the advantages of green fodder. The growth of corn has been shown to us as being very great. I agree with every word of it. Corn-fodder has been proved time and again in this State, within a year, to be worth as much, pound for pound, as the best English hay, for the production of milk. That is a great revelation to the farming interests of Massachusetts, and a very important one. But we must consider the cost. We know that corn-fodder, well cured, well housed, and properly fed, will produce those results; but we also know how difficult it is to cure corn-fodder properly. I was going to say that it is impossible, and there are certain seasons when it certainly is; and there is a great deal of labor attending it also. The labor must be considered, in curing and preparing corn-fodder, just as much as the labor should be considered of carting twenty-three tons of water into the silo. The labor in the one case should be considered just as much as in the other in estimating the cost of the food. Professor Goessmann has told us, that, in drying hay without rain, there is really no loss of nutritive quality; but he says that two or three rains, such as we are apt to get upon our hay, will reduce the nutritive quality of that hay or fodder from twenty per cent to more than fifty, besides the labor attending the curing of hay in rainy weather. The loss is not pretended to be any thing like that in the silo; so that, in estimating the value of dry food in comparison with green food, we must take all of these things into consideration in order to get at fair results.

Another point. It was stated that it had been claimed (and I suppose that referred to my statement) that forty tons of corn-fodder could be grown upon an acre; and another gentleman asked the question if it were possible to raise enough food upon an acre of ground to keep six cows a year. But it will be noticed that I did not say "a year:" I said "through the winter." I said that enough food could be grown on an acre to winter six cows. I said so then, and I say so now; and I say it is possible to grow forty tons of corn-fodder to the acre. We were recommended by the essayist to intensify our farming. He said that we should do that in order to secure the greatest profit. He quoted the cases of several farmers who had grown this year from fifteen to twenty tons per acre. This year has been a very bad year to grow ensilage: a great deal of corn failed to come up. It has not been a successful corn year. A great many farmers have grown not more than fifteen tons to the acre, and some not more than ten; but other farmers have grown forty tons and more. Intensify your farming. Get the greatest results from the smallest area of land. Cultivate highly, and you can get your forty tons and more, I have no doubt. So that, in discussing this subject, it is unfair to take the lower products instead of the possibility of the greater, that may be easily obtained from intensified agriculture.

The cost of the silo and of filling it was alluded to, and it was made to appear that it was more expensive food than dry fodder. Then the position taken by the advocates of the silo — that there was an advantage in ensilage over dry food — was not admitted. But I believe that it will not be necessary to make a very extended argument to prove that green grass in June will produce more milk, or more flesh, than the same grass cured and dried into what we call rowen-hay, and fed to the same animals. Professor Goessmann says there is no loss of nutriment in the drying. You may let a cow, or any animal, feed on this green succulent grass, and then let them eat the same grass when cured and made into hay, and is there a practical farmer here who will not admit that there will be greater results from the green grass than from the same grass cured into rowen-hay? I believe that chemistry as applied to agriculture has done a great deal for it, and I honor it, and heed the results that have been given to us; but I do believe that there is something in the principle of life that is exhibited in the green grass that cannot be analyzed — that cannot be reached by any chemical analysis that we have at our command. We cannot measure the value of it as applied to the animal system. That I believe; and I think your experience as practical men will sustain me in that belief. So that, when we hear of the analysis of the different materials of the green grass as compared with the dried food, there is something that I call, if you please, the spirit of life in that green grass that has not been reached by that analysis; and I think it will explain in many instances the discrepancies that appear between the investigations and the analyses of the scientists and the practical results that we see every day.

Now, I claim, in advocating the silo and ensilage, that we do preserve, to a certain extent (I do not know how much or how little, but to a certain extent), that principle and spirit of life that I have been speaking of. I know of a great many instances of farmers who have changed the food of their cows from ensilage to hay, and I do not know of a single instance where the cows did not shrink in their milk after that change. Then, after feeding hay a while (and, mind you, they were given the same quantity of grain in both cases), they were changed back again from the hay to the ensilage, and they increased in the quantity of milk; and this milk was not obtained at the expense of their flesh. They still maintained their flesh, and increased the production of milk also. So that, as far as I am concerned, if every analysis that has ever yet been made tends to prove that there is such a great loss in the process of ensilaging as to make it useless, if my cows will come forward and say, in the products at the pail, and by the touch of the hand, that they are increasing the quantity of milk, that their flesh is increasing, that their skin is soft and pliable, that their hair lies smooth, and they look healthy, I will go with the cows every time.

But I do not wish to have it understood that I am denouncing the results of these chemical analyses. I approve of them by all manner of means; and we want all we can get. But chemistry has not yet attained to its highest development in my opinion: and in order to obtain the best results, that we must have in order to have a certainty, we must have something else besides the chemical laboratory; we must have the laboratory of the animal stomach to investigate, and we want that done under the eye and care of these very scientific investigators. The only way to obtain that, that I know of, is by the establishment of an experiment station, where those experiments can be pursued in a scientific manner: not under the general observation of farmers, which was so strongly denounced here this forenoon, and rightly, it may be, for we do make great mistakes; and we go groping in darkness, without this very accurate knowledge that may be obtained at an experiment station, under the eye and care of scientific investigators. We, as farmers, cannot do it: we have not the ability to do it. We can only go on in our way without this help, and judge from the results at our milk-pail and at the slaughter-house. But we want to know more — we want to know, as the gentleman said this forenoon, before we come to that point, just what material to obtain in order to bring about these results in the most economical manner.

Now, I suppose there are some gentlemen here who feel that I have got ensilage on the brain, or, as one gentleman has expressed it, that I am a "crank" on that subject. I am; but I tell you I have no axe to grind: I only want to know how to feed my cattle in the best way; and, when I find it, I am very glad to tell my neighbors all I know about it, — I am very glad to inform them of all my experiments; and now, when I have a silo built in a substantial manner, and have about one hundred tons of ensilage in it, I think I shall try to feed out that ensilage; and if next spring I find I have made a total failure, depend upon it, I will let you know. I will not keep it from you, if I find I have made a mistake: I will own up, back down, ask your pardon, and do every thing I can to redeem any mischief that I may have committed.

Mr. Sanborn. I have been very much interested in the remarks of the gentleman. I have been taking some notes of his eloquent, but, I must say, rather sophistical address. I think he has treated the subject as it was left very skilfully indeed. He has ignored very much that was said with a great deal of art. I have no suspicion that our friend is a "crank" upon the subject of ensilage: I have a slight one, however, that he is an enthusiast. I hope he will realize his sanguine expectations. I suppose that he must have slipped out of the back door when I got about half way through, by the way he uses the facts that I stated this forenoon. In fact, he has gone upon the good old-fashioned idea of brushing away exact statistical facts by a sweeping general observation. I am not aware that he has specified a single fact to offset one assertion I made this morning. Always a farmer myself, and always farming a farm of my own, I am always careful not to make any general proposition that must rest heavily upon mere theoretical deductions, and that I cannot base upon facts taken. I think, Mr. Chairman, that I have less respect for chemistry as applied to nutrition than the gentleman claims for himself; for such observations as I have made for a number of years, of cattle feeding on the farm, lead me to believe, with the gentleman, that chemistry is not yet competent to fix the value of food accurately. I believe it would be very useful, if we were buying a given food, that we should buy it upon the basis of chemical analysis; but I should not expect that chemical analysis to measure with accuracy the value of that food in nutrition, or its value as compared with what an analysis might show some other food to contain. We have still need of a great deal of skill in determining the value of food after we have bought it upon analysis; yet a chemical analysis might be, in its proper place, a vast deal of use. There are various changes going on in the maturing plant, whose significance is not known: there are many things which the chemist, or animal physiologist, cannot as yet find out in regard to the functions in feeding of animals of the constituents of food; so that, upon that subject, I am fully as radical as the gentleman himself.

I think some of you may have been misled by the gentleman's misapplication of the terms that I used this morning. He uses the word "unfair." I think he made a very unfair use of my talk this morning. He says I spoke of feeding forty pounds of ensilage a day, and took that as the standard, and four quarts of bran. I distinctly said, when I first spoke of that amount, that I used it for the purpose of showing some of the fallacies that had been propounded. I afterwards used sixty pounds of ensilage and five pounds of meal as the amount generally claimed as used by those feeding ensilage, and said, that, in my experiments, I had fed with equal success less organic matter in dry foods. In illustrating this point, I said that Professor McCook, in actual experiment, fed a given number of pounds of dry matter in this very same ensilage, which amounted to eighteen pounds and three-tenths digestible nutrients against the same amount in air-dry foods, and the air-dry foods came out ahead. In my feeding-rations that I named to you, I used two pounds less of digestible matter, and got as much milk as he records, — twenty-three quarts per cow. Now, there is an exact fact. That is not a general observation; that is not guess-work. There is this honest cow behind it, that cannot tell a lie, you know. She is behind all these statements. Now, if the gentleman will give me one single absolute fact, verified by his own experience or that of others, that is contradictory of this, I shall be glad to hear it. I have also quoted Professor McBryde's experiments with ensilage, where he weighed every thing, and had an honest steer behind it. He used more organic matter in the ensilage than I did. Further than that, I do not think that Professor McBryde took out of the silo all the dry matter he put in. He supposed there was a loss; but I assumed that every thing came out of the silo that he put into it. I also remarked that fifteen tons to the acre was this year's product. I said that was the amount the farmers were getting; but afterwards I stated that twenty-five tons was the standard. I do not believe that the average result of New-England farming is twenty-five tons. I asked an intelligent and thrifty farmer in the river-valley, who has one of the most fertile farms in New England, how much he raised, and he said twenty tons. "Do you think," I said, "that is as large a crop as would be raised on land capable of producing fifty bushels of corn to the acre?" — "Yes, sir, as large as would be raised on an average farm. I can as easily raise sixty bushels of corn as I can twenty-five tons of corn-fodder." And my own experience tells me that twenty-five tons of corn-fodder is a good crop. That was the standard I used, not fifteen. There the gentleman would place me wrong before you.

Mr. WARE. Excuse me. I said fifteen or twenty.

Mr. SANBORN. I did state that that was the amount raised this year; but at the same time I preferred to use as the standard twenty-five tons in order to meet any criticism that might come from such arguments; and I also said that Mr. Cheever had raised as much dry matter from millet this year, per acre, as is raised in twenty-five tons corn-fodder. I maintain that these results show accurately that dry food is substantially or fully as valuable as green food. Furthermore, I did say that I had fed from eighty to a hundred pounds of corn-fodder, for three separate years, to cows against hay, the exact weights of milk being taken (and they say that two pounds of ensilage are equal to one pound of hay); and yet, in that exact experiment, carried on for three years, that quantity of corn-fodder, varying from eighty to a hundred pounds, even the hundred pounds, did not make so much milk as twenty pounds of hay. That is definite and decisive, and right to the point, it seems to me. I found, as regards superiority of green crops, the same result also from the root-crops. There is no scientist behind all that. I am not a scientist: I am engaged in practical farming. That is all I have to say on these points.

Now, I am not talking as an attorney or advocate. I have no interest one way or the other. I farm a very large farm; and there are very few farmers in New England who have more at stake than I have personally. I do not believe there is a farmer in New England who would be more glad to see the enthusiastic predictions of the believers in ensilage fully realized than myself. Indeed, it was with the deepest regret that I found that this new revelation was not to fulfil the expectations of those who so warmly preached it. We have got to meet stern facts. A few years ago steaming food was going to revolutionize our whole system of farming; and yet a gentleman who had a very extensive herd of cows told me that he had met with various difficulties in consequence of the use of steamed food. So, too, of muck. There was a time when it was supposed that every farmer who had a muck-bed could make himself rich. It was thought that every muck-bed was a mine of wealth, and would make a man rich at a bound. But where is muck now, after twenty or thirty years? I am not here to denounce muck: it has its place, but it is not going to revolutionize farming. The silo has its place, in a very modest way; but it is not going to make you all wealthy. I believe in corn as strongly as any ensilagist in the country, but a silo is not necessary to grow it. You can grow it, and, I believe, feed more cattle from an acre of corn matured than you can from an acre of ensilage. If you look at the science of it, you will find that the chemists have discovered that the nitrogen of the plant has not been organized into flesh-formers at the time you cut it for ensilaging. I cut my hay after bloom; though I was, previous to experimenting, an ardent advocate of cutting as it went into bloom. I had to change my opinion after ten different experiments. Now, the scientists tell us that at the time of bloom the plant contains nitrogen not organized as albuminoids, and it is only as albuminoids that you can use it to make flesh: that is to say, the plant is not fully organized as food at the time of bloom. After collecting from personal work and the work of others all the facts I can, I do not believe that its development afterwards will decrease its nutritive value. Mere reasoning will not settle the problem, but facts seem to corroborate this view. We know that plants have not completed their growth at that time. I find grass increases from thirty to forty per cent from early bloom to full formation of seed. Now, your corn-fodder, as it is grown thick, cut at that early period, has some materials in the sap not organized into plant-tissue, which will never have the food-value that they would have if the corn were allowed to mature. That, I submit, is a valid objection to this innovation; it favoring a crop so thickly grown as to fail to mature, and yet yielding no more dry matter per acre than matured field-corn.

I did not intimate for a moment this morning that the cost of the silo should be charged to the first crop, as the gentleman makes me say. I did say that he himself, and two other gentlemen, had said that their silos cost them three dollars for every ton of capacity. Now, if you grow twenty-five tons of corn-fodder, that is seventy-five dollars for your silo. The interest on that, at six per cent, is four dollars and fifty cents. That is a fact to begin with. I submit that it is a valid objection,—one that cannot be lightly brushed aside, or passed over. We may go contrary to mathematics, but it is an exact science. We may defy it, if we please; but we know who has got to suffer when he butts his head against a wall. It is the interest on that every year that is the cost. If a man grows fifty acres of corn-fodder, his silo will cost him, at that rate, thirty-seven hundred and fifty dollars,—as much, perhaps, as his farm is worth.

As I have said, I am not here as an advocate. I want simply to state facts. We must look facts square in the face, and not be carried away by a momentary excitement. It takes a good deal of a man to keep cool when the tide is rushing in one direction; and I think that a good many of our farmers are level-headed men, for I find that they are keeping cool. In saying this, I do not say that the silo should be kicked unceremoniously out of New England. I say it should be brought down from the elevation to which it has been hoisted in public estimation.

Mr. SLADE. I wish the gentleman would answer one question before he takes his seat. Suppose you were put in possession of ten cows, and were required to supply this village with milk to the greatest extent possible, and you had nothing to feed them on, and had to go into the market and purchase the food, what would you purchase, and how would you feed it to produce the most milk?

Mr. SANBORN. I will suppose that hay is twenty-five dollars a ton, oat-straw eight dollars a ton by the carload, and corn-fodder eight dollars a ton,—said to be the prices of this place. If I had the hay and fodder in my barn, I should sell the hay, and use oat-straw and corn-fodder. I should not use the hay. I should buy limited amounts of clover, if I could (as often can be done for less than hay), because it is worth half as much more than hay as a fertilizer. I would feed the straw and the corn-fodder (more of the latter), with the addition of some cotton-seed meal. Taking the coarse foods I have named as the basis, I should put with them cotton-seed meal, bran, or corn-meal. I do not believe in feeding for a poor quality of milk.

Mr. Slade. Would you buy what we call shorts?

Mr. Sanborn. Yes, sir. Very many suppose that milch cows should be fed radically different for milk from what they would be for butter. I sell milk. I feed substantially the same for milk that I would for butter; because I do not believe it pays the farmer himself to make poor milk, for the reason that the vitality of the cow has got to be supported. If your food will make poor milk, it will be bad for the vitality of the cow, and in the end you will be the loser. I have not very much faith in the green foods: I do not think they increase the flow of milk to any great extent.

Mr. Slade. What quantity of meal would you feed?

Mr. Sanborn. That is a matter of opinion. I feed six pounds a day of the mixture.

Mr. Slade. Are shorts injurious to the quality of butter?

Mr. Sanborn. Yes, sir. I can feed six pounds of corn-meal to advantage; and six pounds of corn-meal will increase the butter-product seventeen to twenty per cent over bran, and give a better quality also.

Mr. Slade. Will it increase the milk over shorts?

Mr. Sanborn. No very great difference. The corn-meal will give about one per cent more of milk than the bran.

Question. You speak of the use of cotton-seed meal: what is the cost of it at the present time?

Mr. Sanborn. I pay thirty-one dollars a ton by the car-load. I speak of cotton-seed meal for the reason, as I said this morning, that I think it is the cheapest food that I can buy.

Question. Do you think there is any danger in feeding cotton-seed meal?

Mr. Sanborn. Yes, sir, if you feed too much of it. I have had trouble in feeding too much. I lost a pig this summer by feeding an excess of it. I have fed an excess of it to my steers, so that I had difficulty in getting them out of the trouble. I never feed a calf a few days old with it. I wait until it is a few weeks old, and its stomach gets strong; then I begin with a small quantity. I never care to feed a steer more than three or four pounds a day for growth. I may say, further, that there is no need of it. It is very rich in albuminoids, and you do not need to feed six pounds: if you do, you waste part of it. Three pounds is the limit of desirableness. If it is not the limit of safety, it is the limit of desirableness.

QUESTION. What is the nature of your trouble with steers?

Mr. SANBORN. They are made costive.

QUESTION. Do you suppose that it will produce garget?

Mr. SANBORN. An excessive amount of it would be dangerous. I have never had any trouble with garget. I know that corn-meal and cotton-seed meal are both said to produce garget, but I never have had any trouble. I think it is because I feed them with coarse foods. I do not feed them with hay. I have not fed bran with corn-meal for two or three years, to any extent, for the reason that cotton-seed meal has been cheaper. I would not feed bran for butter, in any event, or only in very small quantities.

Mr. CAPEN. I have seen it stated in agricultural papers, that there is a growing demand in Europe for cotton-seed meal; and the price is rising, and there is a growing demand here evidently. What substitute can be looked for in case it should rise to fifty dollars a ton?

Mr. SANBORN. In the first place, the supply at the South has never been touched, and it will be enormous by and by. But if you get short, I should recommend the use of clover-hay. I have this year about fifty tons of clover-hay which I have raised. When I am feeding clover-hay with my coarse fodders, I do not need so much cotton-seed meal. In fact, clover-hay and straw are all you want for ordinary growth: that will give you a pound to a pound and a half growth a day.

Mr. CAPEN. Your opinion of clover is very high.

Mr. SANBORN. Very high indeed.

QUESTION. What is the best way of feeding it?

Mr. SANBORN. I always feed it with coarse fodders. I should not value it so highly, fed alone. My cattle eat it up clean.

QUESTION. Did you ever give a horse any cotton-seed meal?

Mr. SANBORN. I never have. I have a pair of very fine horses, and the man who takes care of them has a great deal of pride in them. He feeds them hay, and I have never insisted upon his feeding them in any other way. But if I were feeding them myself, I should give them cotton-seed meal and other grains, and some straw. I should not think of feeding a horse on hay alone.

QUESTION. Do corn-stalks cured in the ordinary manner (by stacking out in the field) lose much of their value?

Mr. SANBORN. I do not think they suffer any serious loss. I do not think I have met with any loss this year to be mentioned.

QUESTION. How would you feed dry cows and young stock?

Mr. SANBORN. I should feed young stock, as I said, on the coarse fodders and cotton-seed and corn-meal mixed. If I had to buy all my grain, I should feed the common animals three pounds of cotton-seed meal a day, and all the coarse fodder they would eat. You cannot grow young animals on good hay profitably in most parts of New England: it is out of the question, at present prices. I can give you some statistics on that point. I had two heifers that were fed on half cotton-seed and half corn meal: the rest of their food was corn-fodder and straw. They were yearlings, and weighed about seven hundred pounds. The cost per day was seventeen cents and three-quarters for the pair, — less than nine cents a day. The growth was three pounds and a fraction a day, — five cents and two-tenths per pound of growth. But my young stock gain in summer almost identically the same as in winter, — summer cost a cent and a half per pound, or average cost three cents and thirty-five hundredths per pound. These cheap foods I speak of make my steers and heifers grow as rapidly in winter as in summer. A year's growth costs a little less than the selling-value.

Mr. SLADE. When you speak of corn-meal, do you mean that the cob is ground with the corn?

Mr. SANBORN. I do: yes, sir. I find that a pound of it, particularly when fed to pigs, does just as much, or about as much good as clear meal. I would not feed it to very young pigs: they want something more easily digestible than the cob. I prefer feeding young pigs middlings. I have found that a pound of cob-meal gives me almost identically the same result as clear meal for pigs.

QUESTION. Does cob-meal increase the butter-product?

Mr. SANBORN. I have found that cob-meal does not increase the butter-product any, and the milk but very slightly. Its value depends wholly upon where you use it. There is where the chemist cannot help you. The fact is, that, by experiment stations, you have got to get exact knowledge, and then you will get more and more light upon which you can work. We want theories to set the investigator at work to get facts, but the facts must come before we can formulate the law.

QUESTION. How do you get your cattle to eat up dry corn-stalks clean?

Mr. SANBORN. I don't. They will leave, perhaps, twenty per cent when they are fed with corn-fodder alone; but where I feed, as I am now feeding my cows for instance, a ration of clover-hay, a ration of straw, and a ration of corn-fodder, they eat up substantially the whole of the corn-fodder; but there is a little left, — sixteen per cent.

Mr. MERRICK. The figures show that it costs about a dollar a ton to cut the corn, and put it in the silo. What does it cost to cure your corn in the ordinary manner, get it into the barn, and, when it comes time to feed it, cut it up?

Mr. SANBORN. I do not cut it.

Mr. MERRICK. Does not the cost of curing it and getting it into the barn, and the amount of waste (twenty per cent), make a greater sum than the one dollar that it takes to put corn-fodder into the silo?

Mr. SANBORN. I have made some estimates upon that matter for myself. I do not think it does. I think the balance is on the right side.

Mr. ——. How much?

Mr. SANBORN. I cannot say; perhaps fifteen or twenty per cent. It is not a large matter, but the orts are worth about half the value for bedding. I charge them to the stock at three dollars for bedding. That is credited to bedding, and the remainder I charge to the animal. In the first place, there is one point worth observing in the growth of your corn, — most of the artificial supply of plant-nutrition that it takes to grow and mature a crop of corn — the potash, etc. — is found in the corn-stalks. Corn-meal is quite carbonaceous; and you will find that half or two-thirds of the plant-nutrition is in the corn-fodder itself; and there will be left in the orts, for plant-food, not, perhaps, what I charge to it, but a great deal of what I charge to it; and then it still has another value as an absorbent under the cattle, and it makes a clean bed to lie upon. So that I think I charge less than I might be entitled to charge in that way.

QUESTION. If you should cut up your corn-fodder fine, and put Indian meal with it, so that they would eat it all, would it be good for any thing?

Mr. SANBORN. If they ate it, it would be of some value; but the part they do not eat is of the least value. The stalk is not so valuable at the bottom as at the top. It is not all eaten up when it comes out of the silo. I have seen ensilage where it was not all eaten up. I went to one place where it was claimed that it was all eaten up clean, and saw that there was considerable left. The man claimed that it was injured, and I presume it was.

QUESTION. Mr. Ware quoted Professor Goessmann as saying that English hay, if it were wet two or three times, lost fifty per cent. Now, in drying our corn-fodder, it will usually stand out from twenty to thirty days before it will get sufficiently dry to put in the barn; and in that time it will receive several rains, sometimes hard ones. Will not that corn-fodder lose quite a percentage of its nutritive value?

Mr. SANBORN. There are several things to be said about that. The corn-stalks do not get wet, except on the outside. The water runs down on the outside of the stack: it does not soak into it very thoroughly; and, when the water evaporates, it does not carry with it any organic matter. Again: fifty per cent must be an extraordinary loss; for I was reading very recently an account of a German experiment, where hay was allowed to stand two weeks through an almost continual rain, and the loss was inside of thirty per cent. It was put out on purpose, and allowed to be drenched through by a continuous rain of two weeks (I think that was the time); and the result was, it lost only about twenty-seven per cent.

QUESTION. Does it not make a difference whether the hay is late cut or early cut?

Mr. SANBORN. Yes, sir. If the hay is later cut, it will lose less. It grows less in green weight as the plant matures. The sap, in the process of transition in the stalk, carries with it the nutrition which is taken up in the seed and organized in the plant. Theoretically, I say, it will lose less ten days after blooming than two or three days before blooming.

Mr. SLADE. Is not early-cut hay more palatable than late-cut hay?

Mr. SANBORN. Yes, sir.

Mr. WARE. There is one point which I would like to have explained, if you please. You have said, that after the time when corn is usually cut for ensilage, which is when the kernel is just about mature enough for boiling, there is considerable growth of material, and increase of nutrition: none of us would doubt that. But the point I want to come at is, whether the additional growth that occurs after the time when it would be naturally cut for ensilage does not draw more largely on the fertility of the soil to make that growth than the portion that is grown previous to that period; that is, in maturing the seed, does it not draw more largely from the fertility of the soil than it does up to that time?

Mr. SANBORN. I think I will convince the gentleman that it does not. The plant will have more of the albuminoids, so called, at the time of flowering; that is, it will have a greater percentage than at the time of complete maturity. The element that costs the farmer the most to supply to his land is nitrogen. The albuminoids have nitrogen in them: they do not increase so fast after flowering as before. The carbohydrates do increase rapidly, the materials of which come from the air and water. Therefore the growth between bloom and maturity is made relatively more from the air than from the soil. Then again, in practice, if it did, I should care nothing about it, because our purpose is to take from the soil all that is possible. We very often speak of cropping the soil, not exhausting it. My purpose in farming would be to exhaust the soil as rapidly as possible. If I could take off all there was in the soil in one crop, I should be very happy to; and I would put back as much as I had taken off the next year.

Mr. SLADE. A gentleman says, "I have been raising fodder-corn, cutting it at a certain period, and feeding it. Why should I not let it stand and mature, and, after it has glazed, cut it up and stack it, and then store it? I would get clear of husking, which is very expensive, and get clear of many other items of expense." How would that do?

Mr. SANBORN. That question has received considerable attention. The great trouble is, that, as you very well know, corn whole is liable to pass the system undigested. Experiments at the Maine Agricultural College with the hog have shown that a hundred pounds of whole corn is not as efficacious as a hundred pounds of corn-meal. I think the difference just about paid the miller. The cost of husking, going to mill, and toll, would be, for a good acre, ten dollars. If the whole corn-plant was fed in proper combinations with other foods, and pigs followed the stock, I am inclined to think the practice would be economical. Some one has adopted the practice of running the stalk with unhusked corn through rollers to crush the seed, and thus feed it, and reports great satisfaction.

Mr. **Philbrick**. I should like to ask one question, and that is with regard to the value of the corn-crop. If it is more valuable for feeding dry when it has matured, why would it not be more valuable for putting into the silo when it has matured? Why is it that we are obliged to cut corn for the silo just at the point when it begins to glaze?

Mr. **Sanborn**. Mr. Cheever said yesterday (and you know he has had great experience with forage plants) that he had come to the conclusion that he had better sow his forage crops so thinly that they would mature, and then feed them out. That bears very directly upon this question. Now, we need not plant our corn so thickly that it will not mature. Why not plant it thin enough so that it will? I am inclined to think that is the better way. That is my opinion.

Mr. ——. Then you would not get twenty-five tons to the acre.

Mr. **Sanborn**. You will get as much of the dry matter. I think that is the better way. You will have less to handle in the silo. As your crop matures, it grows less in green weight, but the dry matter is heavier: therefore, if you allowed it to mature, you would save handling so much weight. There might be a question of its keeping as well.

Mr. **Hersey**. I have had my mind made up as to what I had better do myself; and that is, to plant corn, let it get ripe, harvest it, feed the corn and the fodder to the cows, and, if there is a surplus, raise pork and sell it. I have felt that by so doing I should be sure of not having to pay out money. If I build a silo, I reason in this way: I have got to pay out several hundred dollars to start with, and then, after I have harvested my corn, I have got to pay out money again for cotton-seed meal. If I do the other way, I feel as though I am doing a little safer business, because I am having money coming in instead of going out. That is the point with me. Other farmers who can pay out large sums of money just as well as not, and who get their incomes at a season of the year when I have but little coming in, and who get them from some other source besides the farm, can afford, perhaps, to have silos. If the time comes when those who can well afford these experiments (for I consider that they are experiments yet) can prove to the satisfaction of everybody that they are getting rich out of it, I have no doubt that we poor fellows will follow them; but it will be only a question of time. We shall lose a few years of enormous profits, perhaps; but still, if I pay my way, and am happy all the time, I think that is the great thing. It seems to me, that, if I had to go and hire four or five hundred dollars to build a silo, I should begin to be a little uneasy. There would not be an absolute certainty of that four or five hundred dollars coming back again; and I do not know as I should sleep quite as well as I should if I felt that my corn was growing, and I was going to harvest it in the old way, and knew just about how much work it was going to be, and just about what it would do for my cows when I fed it out. Again: if I had valuable cows that I did not feel as though I could afford to experiment with, or fine horses, it seems to me that I should not feel quite as safe to feed them with a fodder that I knew nothing about, and with which we in this country have had but little experience. I should feel, as I went into the barn and looked over the cows and the horses, that possibly they might come out as I have been told Mr. Bailey's sheep came out last winter. I do not know as it is so; but I have understood that he lost a good many of his sheep that were fed on ensilage. We have yet to demonstrate, beyond the possibility of a doubt, that this food is not only cheap, but also that it is a food which is good for the health of our animals. You know, many of you, that the steaming-process had its day. It was considered a great discovery, and for a long while men fed it without any trouble. I know a man to-day who feeds fifty good cows, that are worth a good deal of money, on steamed food. He has fed them for the last eight years in that way. I have endeavored to convince that man that there is danger in it. It has been found that it is not wholesome to feed animals on steamed food; but that was not found out in a week, nor in a month, nor in a year. We must wait to find out these things; and therefore I say I am going to be cautious about the use of ensilage. I am going to wait and see what the result is, and those of you who are of my mind of course will do the same. When I come before the farmers of Massachusetts, I feel that it is my duty to express to them my honest convictions. I feel that it is my duty, if I give them any advice, to give them the same advice that I will take myself.

Now, my friend Mr. Ware, a man to whom I always look up in many things for advice, it seems to me, with all his wit, is getting a little enthusiastic. You could all see how he felt about his horses. He tried to have us understand, that, when he fed his horses on a material that was eighty-seven per cent water, he could hardly hold them. But how long has he fed them? He has fed them about a week or two on that material. You can see at once he is getting a little enthusiastic, and I am afraid he is trying to get us so too. But let us be cautious.

Mr. Ware. After my friend Hersey has referred to me so pleasantly, I certainly should be ungrateful if I did not reply in the same way; but I am going to discuss the point in seriousness. The cost of silos has been the great bugbear from the beginning. Let me tell you, my friends, that the cost of building a silo is not such a formidable thing. In counting the cost of any thing, I never reckon my own labor, and I believe farmers generally do not. You may think that my labor is not worth much; but I tell you that I have labored with my hands all my life-time, and, in my earlier years, I think it is safe to say that I did the work of two men in the field every day, so that I know what real labor is. I am not in the habit of reckoning my labor very much in estimating the cost of any thing. I hire men, and that labor has to be paid for. Last winter I commenced with my two men that I hire by the year (in the summer I hire more), and at odd jobs, as a woman would take up her knitting-work, I went to work with my men digging a hole for the silo; and I did not feel that the cost of building my silo was money paid out, except what I paid for the cement. So that it is not such a formidable thing to build a silo. A good farmer of common sense, like my brother Hersey, with one or two men, can do all the work, without calling in any other outside help — do it at odd jobs through the winter, when, as Mr. Russell said last night at the banquet, farmers were rather in the habit, now that machinery was so abundant and so perfectly adapted to the work of the farm, of hibernating, like the bear and the woodchuck. Instead of doing that, let him go to work and build a silo, and work in his farm help as he can, and he will get a silo without feeling the cost scarcely at all. The cement is all that he will have to pay for in cash. It is not a formidable thing to build a silo; and it is a thing which a farmer, with his ordinary farm help, can accomplish with very little money paid out. Now, that is my own experience. I was asked here last night what was the cost of my silo; and I stated what would be the cost, supposing I hired every thing done.

Now, Mr. Hersey says that to be happy is the great thing to be desired. That is what I have been trying to get at all my lifetime; and I can tell you that I never was really happy in seeing my cattle feed, until I built my silo. It has made me terribly unhappy to go into the barn and see them eating hay that was worth twenty-five dollars a ton, and realize that by spring they would have eaten off their heads. That has worried me, and made me feel unhappy. But I tell you, since I have been feeding ensilage, when I go in and see my cows, as I do two or three times a day (which has not been my practice), I am a happy man. I rejoice to go in there and see them eating that ensilage that has cost me little or nothing. They are thriving, and they are happier than I am. It is a meeting of mutual admiration; and, if that is not a happy meeting, I don't know what is.

I am not going into any further particulars. I think you have got my ideas pretty clearly. But I did want to bring before you how easily a silo can be built by a farmer of limited means without laying out much money.

Mr. SLADE. How far from your barn or place of feeding is your silo?

Mr. WARE. The barn where I keep my cattle is in one building. In an adjoining building, and attached to it, is another barn, which I use for a carriage-house. Under that carriage-house I had a root-cellar. I have been in the habit heretofore of raising roots, and feeding them to my cattle; and I had a good root-cellar stoned up eight feet deep. I dug one-half of that cellar eight feet deeper. The earth was hard-pan, sufficiently strong and tenacious to support the walls with the burden placed upon them by digging eight feet deeper. In digging that cellar, I found stones enough in the gravel, which I threw one side, suitable to be used in making concrete, as I call it; and in that same cellar was gravel just suitable to mix with cement; and, when I got down to the bottom, I struck a spring of water: so that I had all the materials there, except the cement, with which to go on and build the walls of the silo. The gravel that I carted out I needed to make roads with. It was worth all that it cost to dig it out for use on roads. So you see I got paid for digging out the gravel by the gravel itself. I would be glad to dig out anybody's silo, where there was gravel, if I could have the gravel; and the stones I found in the gravel were sufficient to use in the wall. The gravel that was there was just the right material to mix with cement, and I found the water in the bottom to mix it with. So you see, that, no matter how hard it stormed, I and my men could go in there, and build up that silo.

Now, since I have built the silo, I have removed my cows from the barn-floor to the basement. It is not a barn-cellar, because it is above ground, but it is a basement. I have an airy, well-lighted room in this basement. I have a little railway from where my cows are to the silo (which is thirty feet off), and a truck; and on it is a box that I fill from the silo, and then roll along on this truck on the railway in front of the cows, and feed it out to them.

Mr. SLADE. Is the top of the silo on a level with the floor on which the cows feed?

Mr. WARE. No, sir. The top of the silo is on a level with the sill of the barn. The cows are in the basement, which brings them six feet below the sill of the barn. You remember I said I only used one-half of the barn-cellar for the silo. I left a door opening into the other half, which makes a level from the bottom of that door about half way down the depth of the silo; so that half of the ensilage, provided the silo is full, is on a level with where my cows are: the other half, of course, would be so much below. So that the method of feeding the ensilage is very much more economical, and easier, than my former way; and I do insist upon it that the cost of feeding my cows is a mere trifle. I stated last night, that last summer I paid three hundred dollars for hay, not to feed my stock with, but to use on my premises. This year, my hay that I cut on the farm lies in my barn. I shall have the whole of that hay for my use next summer. I may as well tell you how I shall use it. I board some twenty-five horses in the summer, and of course they eat a great deal of hay. The hay that I cut on my farm I shall have for feeding those horses. The ensilage that I have I am feeding to my stock through the winter, and saving my hay. So, instead of paying out money, which Mr. Hersey dreads so much, I shall save all that.

Mr. HERSEY. Are you not a good deal like the man who said he should have caught three rats after he had caught the one he was after and two more?

Mr. WARE. I say I have the hay. Now I will give the floor to Brother Hersey.

Mr. HERSEY. I really want to thank my Brother Ware for the information he has given us; and it is important. It is something that I really never thought much about, that we should work for nothing. I pretend to be expert in the rock business, carpentering, etc., so I can build a silo for nothing. It will not cost me any thing: so that bugbear is gone. But let me tell you it has given me great happiness in another direction. Now I can go into the barn, and see my cows feeding at no cost at all. They are eating corn that I have raised with my own hands, as he has built his silo. I have not paid two laborers: I did the whole work myself. Therefore I can go in every morning, and see them eating food that has not cost me any thing; and I am going next year to do still more.

Mr. CAPEN. I think there is no one in the audience who will doubt that it is always safest to learn to swim before going into the water. Brother Hersey has done that in regard to silos.

Mr. SLADE was called upon; and that gentleman came to the platform, and said, "Ladies and gentlemen, I now have the pleasure of introducing to you Capt. MOORE of Concord, who will address you on fruit-culture."

Capt. MOORE. Ladies and gentlemen, I have always been abused in this way. I never sat down in a good comfortable seat that somebody did not rout me out of it. I think that you have not discussed this subject enough; and Mr. Slade, who has investigated it, ought to talk to you about it. I do not know any thing about it, and do not pretend to.

If this room were full of ladies, I should enjoy talking to them upon the cultivation of flowers in the house, and at the same time I should take occasion to talk to the men for their neglect to keep the young men at home. I believe it is the fault of the farmers themselves that their sons do not stay on the farm, and it is a serious fact that the young men go away. It is the fault of the farmers to a large extent. Farmers, as a class, accumulate their money slowly; and they had rather put it into the bank than spend it in making their homes what they should be, — making their homes places where the young men would be happier than anywhere else in the world. When they do that, the young men will stay on the farm. I always take occasion, when I have an opportunity, to say this to the farmers. When a farmer improves his farm, makes his house pleasant, lets his son have a good horse and carriage if he wants them, gives his daughters a piano, sends them to school, gives them the best education he can, fills his house with books that are proper for them to read, he will make his house a place that the young man will be glad to return to. I have seen the evil that has resulted from the neglect of these things. I have had many men who were advanced in years come to me, and say, "What shall I do to keep my sons at home?" Well, they had run their places in this sort of way: instead of letting the boys go off to ride, to singing-school, or take other pleasures, they have kept them hard at work all the time. I always remember the singing-school with the greatest pleasure. I never could sing; but I always went to singing-school, and carried a book under my arm, and went home with the girls afterwards. I trust you will all remember this, if you have any sons whom you want to keep at home. Make that home a place where the young man will be happier than in any other place in the world, and he will stay there.

I could not resist the temptation of saying that to you, for I say it very often when I have an opportunity. But that has not any thing to do with this silo matter. I don't suppose you are through discussing that, and Mr. Slade ought to talk upon that subject. He has asked too many questions for a person who does not know any thing about it.

Mr. SLADE. If there are any questions relating to horticulture, or window-gardening, or growing hothouse plants, or any thing of that kind, Capt. Moore will stand any amount of pumping. It is a rare chance you have to ask him any of those questions.

Capt. MOORE. I have no doubt that all the gentlemen present would enjoy flowers in their houses; but I do not suppose there is any one in the audience, except the very few ladies who are here, who would care to hear any thing upon that subject. If the whole house were filled with ladies who desired to know what little I could tell them in regard to the cultivation of plants in the house, or the cultivation of plants out of doors, or any thing of that kind, I should be ready to talk upon those subjects.

QUESTION. What is the best material for soil to be used in pots?

Capt. MOORE. Partially decomposed pasture soil.

QUESTION. Any particular fertilizers better than others?

Capt. MOORE. You can give it fertilizers. There is nothing better than the top sod of an old pasture, partially decomposed: but the pot wants good drainage; that is, plenty of pieces of broken pot in the bottom. Do not crowd the soil into the pot. You want to put it in loosely: the drainage will be better, and the plant will grow better. Otherwise you make it soggy. Do not water over-much; neither dry up your plant. You cannot tell that a plant is dry by simply looking at the earth on the top. The true way of watering a plant in the house is to give it a thorough watering and then let it go, not keep a constant drizzle over it: that keeps the top wet; and when you look at it you think it has moisture enough. But the soil may appear wet on top, and the roots be dry. I have two large greenhouses where I am growing hybrid perpetual roses as a specialty; and my son, who has charge of them, is so careful about watering the plants, that he would be unwilling to have me water them. He would not allow any gardener in Massachusetts to water them, because it is a very difficult thing. I do not mean to say that there are not plenty of gardeners who would water properly, but there are plenty of them who would ruin the plants by water. He is so expert at that (though no more expert than very likely I should be after a few trials), that, by the least thump on the pot, he can tell whether there is sufficient water for the plant or not.

One great trouble that the ladies experience in growing plants in the house is from insects. The time to kill those is before you have any of them, as the Irish would express it; that is, they increase very fast, and the time to destroy them is when they first make their appearance. The worst rascal of an insect is the little red spider that works on the under side of the leaf. A great many people do not know that they have it on their plants, until the leaves all turn yellow. They begin to work on the midrib of the leaf, and you will find a little streak of yellow there; and some of the ladies who are most successful in growing plants in the house will detect that at once, and, without waiting to get a dish and sponge to wash it off, they will take hold of the leaf without any ceremony, and draw their finger along on the under side of it; and it is very bad for the spider. They are a very tender little insect, not much larger, many of them, than the point of a pin; but they are very destructive, and they oftentimes destroy the foliage of your shrubs and your plants in the garden when you do not know what is the matter, unless you are acquainted with the cause.

QUESTION. As "an ounce of prevention is worth a pound of cure," is there any way of preventing their coming at all?

Capt. MOORE. You will not know where to apply the remedy until you detect the insects, because you do not have them all the time, nor everywhere, and you would be applying the remedy all around, perhaps where there is no need of it. The great naturalist, Huber, in describing the increase of the *aphis* (I am not telling you this as my own belief, for it seems to me almost incredible), says, that, if the whole increase of a single green fly that you see on a plant in the spring escaped injury, the weight of the insects would amount, in one season, to more than the weight of the population of China, which is the most populous country in the world. That seems incredible, but still it is accepted by botanists as being true.

QUESTION. How often should the soil be replenished in the pots?

Capt. MOORE. It depends upon the variety of the plant. A mistake that most people make is in giving plants too large pots, and shifting, as gardeners term it, from a small pot into too large a one. It is better to make only a small shift. A small plant will bloom better in a small pot than it will in a large one. The reason is this, — that a plant in a pot does not bloom well until the growth is checked by the size of the pot; that is, the pot gets full of roots, and the roots become cramped, and that forces flowers.

A great many of our plants and our roses we grow in pots of the same size two or three years. We may take them out of the pot and reduce the ball, and repot them in the same pot. The method of growing hybrid perpetual roses is a long story. It is an unnatural thing to bloom a hybrid perpetual rose in the winter: it is a deciduous shrub. Deciduous shrubs all require an annual rest. They cannot be forced into bloom until they have had their rest. Deciduous shrubs naturally take their rest in the winter time: they are now taking their rest. If we take them up and put them into a greenhouse before they have had their proper rest, we cannot force their flowers: therefore, to provide against that, we are growing these plants in pots. Those blooming last winter we encourage to get a strong growth, and they get considerable growth before it is warm enough to put them out of doors. They are then plunged into the ground, watered when necessary, and we get a growth in the spring. We do not desire to have them make any growth after the first of July: we keep them as dry as we can and not have them shrink any, and that causes them to drop their leaves two months ealier than other roses, and they take their rest in the fall; and now they are getting ready to bloom. We have simply changed the period of growth, and given them a period of rest, as they would have it naturally.

QUESTION. Does root-pruning tend to produce blossoms?

Capt. MOORE. It would if they had too large a pot. It amounts to precisely the same thing as cramping the roots.

Root-pruning fruit-trees in the garden stops their growth, and causes them to form fruit-buds, and blossom and bear fruit immediately.

QUESTION. Then, ordinarily, you would not disturb the roots of the plant much when repotting?

Capt. MOORE. If we had any roots that were in the way when repotting, we should cut them off. We handle things roughly sometimes in these operations.

QUESTION. In raising tomatoes, we are troubled with large, ugly worms that eat the leaves badly. They are so near the color of the plants that we cannot see them. What is the best preventive for them?

Capt. MOORE. There is no trouble in finding them. You will find the worm close by where the fresh castings are. I do not know of any other way of killing them, except finding them and picking them off. It is a safe way. You have seen a miller early in the spring as big as a small bird: that is the miller that deposits the eggs of those insects. I will say, that, if you find a bug around your garden, no matter what it is, it is safe to kill it. Then you may hold an inquest afterwards, and, if you find you are wrong, you can apologize; but it is the safest way to destroy them.

QUESTION. I would like to inquire how far apart you set your peach-trees. I did not understand you yesterday.

Capt. MOORE. I will tell you how far apart I set my trees, and give you the reason why I plant them so. The custom is to set peach-trees twelve or fourteen feet apart; but I have set mine eighteen or twenty feet apart. I have more land than I can cultivate properly, and I have not half as much land as many farmers here. If you plant them eighteen or twenty feet apart, you have an abundance of room to cultivate between the trees, you have an abundance of light and air about the trees; and the result is, that you have better trees, larger fruit, and much higher-colored fruit, because you get the light and sun between the trees, and they have a free circulation of air.

QUESTION. What varieties of peach do you recommend as the most successful?

Capt. MOORE. There are but three or four varieties that I should plant. In the first place, you must take the condition of the markets. I am speaking now of growing them for market. The markets are supplied from the South (we have not had many from the South this year) until about the 10th or 15th of September. If you grow an early peach, you have got to take a small peach, because most of the early ones are small, and that peach will meet the competition of the large later peaches from the South, and you will be under a disadvantage: therefore I do not want a peach any earlier than the Early Crawford. It is called the "Early Crawford" because there is a "Late Crawford" that is later: but it is not an early peach; it is a peach that usually ripens from the 10th to the 15th of September. I take that for one variety, the Late Crawford for another, and the Old Mixon for another. Then I think I should plant the Foster; though the Foster resembles the Early Crawford somewhat, only a little rounder, and perhaps a little higher colored. But there is danger in planting too many Late Crawfords: not that they would not sell; but you are likely to have, once in four or five years, a season like this last one, when your peaches may be frosted on the trees. I had quite a lot of Late Crawfords frosted on the trees this year: it injured their looks; but they brought about two dollars a basket more than they would if they had not been frosted. I am willing to stand any thing reasonable. I put up with it, of course.

QUESTION. In growing turnips, about the first of July, usually (some years the latter part of August), the leaves will turn yellow, apparently stop growing for a while, and afterwards they will somewhat recover from it and grow; but the turnips are usually poor in the fall when we pull them up. I would like to know what is the cause, and what the remedy.

Capt. MOORE. I do not think I can tell you much about turnips. I will say, further than that, that I have changed my whole course of farming within five years; and, instead of growing a large number of crops, I am growing but few crops, and growing those very largely. I find that is a much better way for me. If you want to ask me any thing about onions, asparagus, strawberries, or dandelions (those are the principal crops that I raise, except grass, peaches, and grapes), I can answer those questions.

QUESTION. What is the best kind of strawberry to raise for the market?

Capt. MOORE. That is what I have been trying to find out. Perhaps some of you can tell me. I have been asked that question, I presume, a thousand times since midsummer. Perhaps Mr. Slade, who has been investigating the strawberry, can answer it. I cannot.

QUESTION. How late would you plant onions in the fall for early spring onions?

Capt. MOORE. I don't raise them that way. I simply raise them as a crop for the market, — three acres. That is all that I sow in the spring.

Mr. PHILBRICK. I can answer that question. We usually sow them from the 20th of July to the first of August.

Capt. MOORE. Wouldn't you plant sets in the spring, rather than sow the onions in August?

Mr. PHILBRICK. If they failed to keep over, I would plant sets. Sometimes winter onions keep very well. When they do, they are more profitable than sets, because it costs very much less. Then, they need very rich land; and they need to be sown upon land that drains easily, so that there shall not be any wash upon them in winter; and sometimes we give them a little covering, such as broken boughs, — very much such covering as we give strawberries.

Mr. SLADE. I will answer the question in regard to turnips. The trouble in planting French turnips is, that we are apt to plant them too early; and, after they have taken hold and grown a while, they will stop growing, and the leaf will turn yellow and finally drop off, and it is uncertain whether they will take a new start and go on or not; and, if they do, they are apt to be of inferior quality. Some years ago I raised five or six hundred bushels on an acre. I planted them the twenty-second day of June, — planted them by hand, — and they came up, and did nicely until about the 20th of August; then they turned yellow, stopped growing, remained so for a time, and after a while they started again, and finally matured: but they were very poor; they were watery, and some of them were rotten inside. Now, the way to raise those turnips successfully is to get your ground in order late: put them in, and force them right through. The best turnip is one that does not stop growing: it goes on from the time that it takes root until it matures.

Mr. PHILBRICK. When would you recommend sowing them?

Mr. SLADE. I sowed one year the twenty-third day of August; but that is too late, unless it is an unusual fall. I raised a few this year. I put them in about the 20th of July; and I think, as an average thing, that is about the right time of year to do it. But you will have no difficulty in raising them, provided you get your ground in good order, and put on fertilizers or manure, or something to make them go ahead, so that they shall not stop growing from the time they start until they mature. The quality of the turnip is much better when grown rapidly than when it grows slowly. If you want to get a hard, brittle turnip, force it from beginning to end.

QUESTION. What fertilizer would you use, with the exception of bone?

Mr. SLADE. There are a good many kinds that it will do to use. Standard Peruvian guano is first-rate.

QUESTION. Would that not make them strong?

Mr. SLADE. No, sir. A great many use Darling's animal fertilizer, for instance. I do not wish to recommend any particular fertilizer, but I speak of that because I know a great many raise them with that. Some of the higher-grade phosphates are excellent.

QUESTION. Did you ever use the Stockbridge fertilizer on turnips with success?

Mr. SLADE. No, sir, I never did.

QUESTION. That has been a question in our farmers' club. We cannot find a member who can raise good turnips with the Stockbridge fertilizer. There will be a black spot on them, or a good many black spots.

Mr. SLADE. I do not know whether that is owing to the fertilizer or otherwise.

QUESTION. How would you apply the fertilizers?

Mr. SLADE. I would apply them in the drill where I was going to plant the turnip, and cover them with a little earth.

Mr. ——. I find it much the cheapest to prepare the ground, and then sow them with a hand-sower.

Mr. SLADE. Yes, sir: sow them with a seed-sower.

QUESTION. I would like to inquire of Mr. Moore what kind of fertilizer he considers best for onions, and how much he would put on an acre.

Capt. MOORE. You can put on ten or twelve cords of horse-manure; and, if you put on another ten or twelve cords, it won't do any harm. I do not have any trouble in spreading from heaps, so as to go from one heap to another, and know I have got manure all over the ground. Then I use considerable potash salts. I would rather have wood-ashes, if I could get them.

QUESTION. What we farmers want to know is how much manure is profitable.

Capt. MOORE. I don't know. I have never used, probably, more than ten cords to the acre, besides three or four hundred, sometimes five hundred, pounds of muriate of potash, and sometimes a little bone besides.

QUESTION. Suppose you could get ashes, how many bushels would you put on an acre, besides the manure?

Capt. MOORE. It would depend upon how cheap I could get them. You see, where you are manuring a good many acres, you find the cost of fertilizers and manures runs up to a pretty high figure. It does on my place, and I have only a small place to what some of you farmers have here, I suppose; although I have to pay out about five thousand dollars a year for labor, and I have to raise enough to pay for the labor.

QUESTION. In putting on your ten cords of manure for onions, do you plough it in, and, if so, how deep?

Capt. MOORE. The way I have done the last two years is this. Of course, I intend to keep all the weeds out of my onions, although they do get weedy sometimes towards the last of the season. Purslane is the stuff that bothers me: but we get that out; we do not allow it to go to seed if it is possible to prevent it. When we pull those onions, if there are any weeds left, we clean them off. By the first of October there will be some more weeds growing, and we go over the ground with a harrow, which discourages the weeds; and, if you get them killed, you won't have the same ones to contend with next year. Then the next spring we put on our manure, and go over it with a disk harrow, and stir it up pretty well. If there are any lumps on it, we put on the leveller and break them up. I do not care about stirring the ground more than three inches deep. I do not think there is any thing lost by pulverizing a piece of ground for onions very thoroughly indeed. There is nothing lost in doing it: there is something gained. Then, if you undertook to sow that ground, even after you had levelled it with the leveller, you would find more or less rubbish left there. You might sow the seed; but, when you came to hoe it with the scuffle-hoe, you would find more or less sticks and stones, or something of that kind. I do not want that rubbish on the soil: so I think it is economy to get it out of the way, and a man takes a horse with a swivel-plough, and runs that about three inches deep, going back and forth, with two men following him with rakes; and, if there is any rubbish in the way, it gets raked up and put into the furrow, out of the way of the scuffle-hoe. If there are any stones as big as a hen's egg, I tell them to pick them up and throw them out. Unless the ground is very hard, we use a scuffle-hoe. If the ground gets hard, get one of those onion-hoes, — not one of those that you can buy in a store (those are not good for any thing), but such a one as Mr. Ware sent me; but if the ground is not hard, a scuffle-hoe does the work a little better than that does. It is used in Arlington. It is not for sale in the stores in Boston, but you can get it there. I know just about the time it takes to hoe rows that are eighteen rods long. It takes just three minutes to hoe a row, because I have done it a great many times on time. You could not do that if there was any rubbish in the way; and with this scuffle-hoe, if you struck a stone or a stick, very likely out would go your hoe, and over would go a foot or two of onions at the same time. That would happen sometimes with the wheel-hoe, if there were any stones or rubbish in the way; perhaps not to a great extent, but it would happen sometimes, if you undertook to run it rapidly.

There is an idea going about that an onion-bed must be hard. I think you do not want the surface extremely hard, and you do not want very deep tillage under it. I do not know as deep tillage does any hurt: I am not going to say it does, because I know the Arlington folks will grow onions (by the way, they do not grow near as good onions as I do). They will grow four or five rows of onions, and then grow celery. Of course, the ground is stirred up very deep when used for celery. They grow good onions, nevertheless; but then they use a little manure on their land, where they are going to get two or three crops, — perhaps a little more than I do. They would not be satisfied with eight or ten cords to the acre.

QUESTION. Do you have any trouble with the onion-maggot?

Capt. MOORE. A little, not much. Where they get to work in a bed, the top turns yellow and falls over: it is partially cut off from the other part. A large portion of those maggots are left in the piece that falls over. Have a boy go along and pick up those tops, and you secure in that way the maggots that would soon be at work upon another onion; then the safest thing to do with them is to put them in the stove. That keeps them down better than any thing I have found. I do not know any actual preventive.

QUESTION. What is the best kind of onion to raise to sell in Boston market?

Capt. MOORE. The middling size, round, thick yellow onion, that is called the Danvers onion sometimes. Be sure you get the right seed: otherwise you will wish you hadn't had any onions.

QUESTION. Where do you get the seed?

Capt. MOORE. Well, that is another thing. I am not advertising any seed-man. I can tell you where I get mine usually. This breeding of seed is on the same principle, precisely, as the breeding of animals, — that "like produces like," — to a certain extent. I start with the best thing I can get; and then, after having formed in my own mind a model of precisely what I want to have my onions, I go to work and select the onions myself. I cannot send a man to do it: I must do it myself. You cannot send a man to pick out any thing of that kind, because there is some little point that the man will overlook; and you do not want to propagate those points. One of them is a little softness close to the stem. A solid onion up there, with a very small stem, and a little rising just at that point, is an onion that will keep a great deal better than one that has any depression there. After selecting onions of the shape and size that I want, I put those away for seed, and I plant them out, and grow the seed myself. Then I do not try to save every lot of seed I have. If I raise the seed myself, I have enough of it; and I want to sow good, solid, heavy seed, after I have it.

QUESTION. How long will onion-seed keep?

Capt. **MOORE.** Well, it is said to grow well enough for two years. It is sufficient to sow it the first year. Some one asked what was the best strawberry. Mr. Slade can answer that question.

Mr. **SLADE.** Well, gentlemen, there is not any *best* strawberry. A strawberry that might be best with me might not with you. If any one desires to go into the strawberry business, let him experiment with a few varieties, carefully selected, and decide for himself. Nobody can tell you what the best strawberry is for you. I can tell you what strawberry does well with me, but I cannot tell what does well with Capt. Moore. So that the question, although pertinent enough, is really a foolish one, to ask a man what is the best strawberry; because a strawberry that does well with me might prove worthless with you. If you are going into the strawberry business, my advice is to try a few prominent varieties. You will learn at the end of the first year which is the strawberry for you to raise.

QUESTION. What are three or four of the best kinds for market to try?

Mr. **SLADE.** The Wilson strawberry has been *the* strawberry for the last dozen or fifteen years. Amateurs have grown other varieties; but the regular strawberry-grower, who has furnished strawberries for the million, has grown the Wilson. Within a few years, several new varieties have been presented to the public, and some of them are rather promising. Among them I would mention the Sharples, the Crescent, the Glendale, and the Charles Downing. There are still other new varieties that come very highly recommended; such as the Manchester, said to be the most remarkable berry that has ever been offered to the public, and which is going to have its run, like the others.

QUESTION. Have you found any strawberry that will yield the quantity that the Wilson has done?

Mr. **SLADE.** I think the Crescent will yield as much as the Wilson.

QUESTION. What is the quality of the Crescent?

Mr. **SLADE.** It is about No. 3. There is a good deal said against the Wilson; yet I would rather take my chance with that now, were it not for its liability to blight, than with any other strawberry that I have ever seen.

QUESTION. If you were raising strawberries for your own table, should you raise the Wilson?

Mr. SLADE. I should.

QUESTION. Rather too acid, is it not?

Mr. SLADE. The Wilson strawberry is not ripe when it turns red, nor even the next day, nor the day after; but, if you pick it three or four days after it has turned, you will find that the flavor has changed: the acid has softened down, and you get a most delicious berry. But you have judged of the Wilson in an imperfect state of ripeness.

Capt. MOORE. Will it do to send to market in a ripe condition?

Mr. SLADE. The gentleman spoke of raising them for your own table. No, sir. You have got to pick the Wilson pretty soon after it turns in order to get it to market in good shape. And, by the way, this is a great fault with a large number of the berries that are offered to the grower, — they are a soft, spongy fruit. You know they ripen in hot weather; and it is very difficult to get a variety of fair quality that will do to carry to Boston, and then reship after it gets there. There is where the difficulty is. What strawberry-growers are now looking for, is a variety that will stand shipment to Boston and reshipment; because, if all the berries that are sent to Boston are to be consumed there, Boston market would be glutted at nine o'clock in the morning.

QUESTION. Do you advise raising them in hills?

Mr. SLADE. No, sir, I do not. I have tried them both ways, and finally come to the conclusion, that, every thing considered, it was better to raise them in matted beds.

QUESTION. Set them out in hills, and let them run?

Mr. SLADE. Yes, sir.

QUESTION. The rows what distance apart?

Mr. SLADE. The rows about four feet apart; the plants sixteen or eighteen inches.

QUESTION. How many crops do you get before you discard them?

Mr. SLADE. I get from two to four. There is a little insect known, where strawberries are raised, by the name of the strawberry-flea, which eats the leaf after the crop is taken off, perforates it so that the leaf fails to perform its function, and a great many of the plants die; and he will find his way to neighboring beds, and commit depredations in the same way. It is not easy to get rid of him: I do not know but it is impossible. That difficulty frequently occurs the first year that the crop is taken off; and the remedy is to plough immediately, and get him out of the way. Don't try to exterminate him in any other way, because it cannot be done, according to my experience. I have tried several remedies. I put on sulphate of copper once, and I put on Paris-green once. I have put on something that finally killed him, but it killed the plants also.

QUESTION. Have you tried to get the witch-grass out of your matted beds after the first year?

Mr. SLADE. Yes, sir: I always do when I intend to keep them over. It is somewhat difficult, but it can be done.

QUESTION. What are the particular merits of the Sharples?

Mr. SLADE. The Sharples presents a very good appearance to the customer.

QUESTION. Large and well-colored?

Mr. SLADE. Yes, sir. Its flavor is not any thing extra. But I have not tried it enough to know what its real qualities are. I took twenty-two berries from a quart promiscuously, put them on a plate, and set them in a cool room, and they remained there from Monday evening until Friday noon. We ate them then, and they had not decayed any as far as we could perceive, and the flavor had somewhat improved. I do not know what experts may think about it, but I do not think the flavor of the Sharples is first quality. It is a very good, showy berry to sell.

QUESTION. Is it earlier, or later, than the Wilson?

Mr. SLADE. There is not much difference.

QUESTION. Some years ago the Cutter was a very popular variety. Has that passed by?

Mr. SLADE. Yes, sir: that has passed by.

QUESTION. Don't you think the Cutter is about the best-flavored berry there is?

Mr. SLADE. It is a very good flavored berry, and requires much less sugar to make it palatable than the Wilson, or almost any other variety we have; but nevertheless it will not do to cultivate it if you have to ship your berries. If you want them for your own use, perhaps it is as good a berry as you can find.

QUESTION. Do you know any thing about Burr's Mammoth?

Mr. SLADE. I do not.

Mr. ——. I saw that at Norfolk, at Mr. Young's place, and he recommended it as the best variety. It was certainly a very large berry, and made a magnificent show. If any one wants a new variety, I would just say that that is a berry that has the recommendation of such a man as Mr. Young.

QUESTION. Why do you adopt the matted system?

Mr. SLADE. One reason is, that I can get more berries from the matted system than I can from keeping them in rows or hills.

Capt. MOORE. Would that not depend on the variety somewhat?

Mr. SLADE. Yes, sir, I think it would. I was thinking of the Wilson when I answered that question. If I was going to raise the Jucunda, or the Great American, or the General Sherman, or any large berry, I would raise them in hills. A large berry requires pretty high culture.

QUESTION. Do you think it is money-making business to raise strawberries at eight cents a box in hills?

Mr. SLADE. I don't think it is. I think there is other business that would pay as well as raising strawberries at eight cents a quart.

Mr. SHAW. I do not know any better berry to eat than the Cutter. I think, as Mr. Slade says, that the Wilson is one of the best berries, if you let it ripen. After you get through picking your crop of Wilsons, if you will go out into your field two or three days later, you will find some splendid berries, as fine as you ever ate. They are acid at that time, but it is an acid that will accommodate itself to your system. But when we pick the Wilson to carry to market, it is like some of the peaches that come from the South: they are not fit to eat; they are not half ripe. They do not taste like the peaches that we pick up under our trees, because they cannot let them ripen on the trees at all; and you cannot ship a strawberry and have it perfectly ripe.

Mr. SLADE. There are a good many kinds of strawberries that are splendid berries under a high state of cultivation; but they are almost worthless if raised without high cultivation. For common farmers to raise, as a field-crop, they are almost worthless.

QUESTION. Why should not common farmers raise them under a high state of cultivation?

Mr. SLADE. Because, when they have such land as I told you about the other day, when they undertake to pick the stones, they will find enough to fill a drain. It is a good deal of work to get the ground into a proper state.

Mr. CAPEN. In regard to the Wilson strawberry, I will say that it is not ripe until it colors nearly black, something like the Black Prince. It more nearly resembles the Black Prince than any other strawberry we have. The Prince is very dark in color, with a very high flavor. There is a good old strawberry which has gone out of cultivation (the Wood) which is perhaps as highly flavored a strawberry as any we raise.

Capt. MOORE. I have two acres now in single rows, and the whole question turns upon this, really, in my judgment. There are certain varieties, like Hovey's Seedling, that throw up but one flower-stem. It is impossible to get a large crop in single rows from varieties of that kind. The Wilder is another one. No plant ever throws up more than one flower-stem. You cannot get a crop in single rows: therefore you must have them in matted beds. That has been settled to my satisfaction. That will apply to the Wilson also. I think the Wilson should be cultivated in matted beds. But when you get a strong growing variety, like Miner's Prolific, or the Sharples, or Cumberland Triumph, which is destined, perhaps, to be the market-berry here, you can grow them in rows. The Cumberland Triumph is a variety that grows uniform in shape, — every one like a hen's egg, almost, every one smooth. It will run the whole season of large size. Its fault is, that it is a little soft. It is harder than the Charles Downing. The plant grows finely; but that variety, when grown in wide rows, is a different thing entirely from what it is when grown in beds. It is a light-colored berry; and, when grown in wide rows, it is high colored, and the berry itself is firmer. It is a berry that sells remarkably well in Boston market. I have two acres planted in rows three feet apart. You might ask me why I did not plant them nearer. I have, as I told you before, land enough: I have more than I can take care of properly. And really I do not find that the strong growing kinds need so much room: twelve or fourteen inches apart is sufficient. The objection to keeping wide spaces is, that you have got to mulch the whole of that space to keep your fruit clean, whereas, under the matted-bed system, you have simply got to mulch between the beds; but the result of wide spacing is, that the fruit is always larger, and is more easily picked, and, while there is but a single row, you will be astonished at the pile of berries you will get from it. Then there is another thing in its favor over the matted bed. When you leave them, after the spring cleaning and mulching the rows is done, you are supposed to start in clean; but, by the time you have done picking, there are a good many weeds in your strawberries, if your land is rich. Now, by the matted-bed method, it is a good deal of work to clean out those beds. Under the other method, I found it very little work last year. I wanted to see how I could clean that bed in the easiest way. I had an old cultivator the frame of which was good. I pulled all the teeth out except the front tooth, and went to a blacksmith and had him make a steel knife, with arms turning up, on precisely the same principle as a horse-hoe, and had that put on the hind part of that cultivator, just wide enough so that I could leave about four inches each side of those rows of strawberries. Before we used that, some time, perhaps, about the 10th of July, we mowed every thing down clean. You could see nothing but the mulch of old hay, and the leaves that were drying up. We cut them all down clean, raked up the leaves, and went on with a horse and cart and carried them off. You will see at once that we could not clean that ground properly without getting that stuff out of the way. We have that stacked up, and have since been using it for bedding. Then we took this instrument which I have described, and run it through the rows, cutting three or four inches deep, with a good strong horse. That is the kind I use on my place,—a horse that weighs thirteen or fourteen hundred pounds, and has enough to eat. The instrument drew pretty hard, but the horse took it through the row without any trouble. There were enough weeds to hold the earth together, and it did not turn it over nor break it up. I have found since, that there can be something in the shape of a clothes-pin rigged on to tear that up. After doing that, we took French's cultivator and went through, and every thing was killed except on the space of six or eight inches where the plants stood. I can take one of these scuffle-hoes that we use to weed onions, and just run that through, and it is but very little work to weed the plants. Now I have the weeds out, and have nothing but the stems of the plants sticking up. But by the middle of August or first of September there was not so handsome a strawberry-bed in Concord as that. It is no injury to take those leaves off; it is a benefit: and it is by mowing, and carrying off the leaves, that you get rid of the little flea that eats the tender leaves that come up.

My neighbors wondered why my strawberries grew so well. I got a fertilizer. It was not a high-priced fertilizer, though it was a fertilizer that analyzed high in value. Professor Goessmann made it to be equal to some of the best Stockbridge fertilizers. My first idea was to put on about a ton to the acre. I thought that was a fair thing to do: and, if you are going to cultivate strawberries, it is no use for you to give them fertilizers in homœopathic doses; it will not answer the purpose. I finally concluded that I would not put on a ton to the acre, but I would take out two or three hundred pounds, and substitute for it two or three hundred pounds of muriate of potash. The leaves had started somewhat before I got that ready to put on, and I thought that I might have some trouble from burning the leaves; but I took the fertilizer and the muriate of potash on a day when there was no dew, and put them on, and I was so afraid that it would not be done properly, that I followed with a corn-broom, and swept the whole of those leaves afterwards, and I had no trouble. But I left the business to be finished by the men. A shower came up: and one row that was not swept looked a little sick for a few days afterwards; the leaves were burned. So that you will find that you can use a good corn-broom to advantage in just such places as that. I do not claim that as any new invention, for I presume other people have done the same thing.

Now I have as fine a bed of strawberries, and perhaps as good-looking a bed, as there is in the town of Concord. I have a matted bed besides; but the cost of cleaning the bed to which I have referred would not be half as much as the cost of cleaning the matted bed, although the cost of cleaning a matted bed is not so much as you would take it to be at first thought, if you use one of the forked hoes to stir up the ground.

The Board then adjourned *sine die.*

ANNUAL REPORT OF THE COMMISSIONERS ON CONTAGIOUS DISEASES AMONG CATTLE.

The Commissioners are gratified to be able to report that the year 1881 has been one of general health with the neat-stock of the State, and that our stock interests have been unusually prosperous. In our last Annual Report the attention of the Legislature was called to the fact that contagious pleuro-pneumonia existed in several sections of the country, and that it was alleged in England that cattle exported from the port of Boston had been found infected with it, causing apprehension among our stock-owners lest there might be an outbreak of the disease here, and throwing suspicion upon Boston as a cattle-shipping port. Mention was also made of investigations then in progress by agents of the United States as to the truth of the allegations. These investigations have been continued; and it is now believed that while this disease exists in certain sections of New York, New Jersey, Pennsylvania, Maryland, and Virginia, not a case of it has ever occurred west of the Alleghanies, and that the suspected cattle from Boston were affected by ordinary lung-disease, induced by foul air on shipboard. But the apprehension of danger from the disease remains in full force; and as a result the Commissioners are frequently notified, by private persons and municipal officers, of supposed cases of it. In July the selectmen of Lanesborough, in Berkshire County, requested us to examine the herd of a farmer of that town who had lost five animals and had three others sick, the symptoms of which were thought to resemble those of this disease. The herd was examined, and a *post-mortem* made of the animals, and the trouble found to be sporadic pneumonia. There have been other cases of lung difficulty, but none of them of the contagious type. The Commissioners entertain the opinion that there is little danger of the appearance of this malady in localities remote from the great lines of transportation. Inflammation of the lungs, or tuberculosis, may be engendered in the stock of any farm by undue exposure, want of ventilation, or confinement in damp and filthy enclosures. But contagious pleuro-pneumonia, which has symptoms resembling those diseases, is the result of contact with an animal possessing the infection, or with some object he has infected, and is disseminated from animal to animal, like small-pox or measles in the human family. The appearance of lung-disease on remote and isolated farms, unless it can be traced to contact with animals from abroad, should cause no alarm, but should prompt their owners to a careful hygienic examination of their premises, and methods of stock management. So long, however, as this cattle-plague exists in four of our sister States, and their cattle are not forbidden to mingle in the great current of trade, so long there is danger of its dissemination along the lines of transit. Twenty years ago, and when it was widely spread through the State, Massachusetts "stamped" it out at an expense of more than two hundred thousand dollars, and not for the benefit of itself alone, but for the whole country; and it would appear that common interests, and comity between the States, should induce a like action where it now exists. The ravages of this disease in other countries have cost them millions of dollars, and to prevent a like result here is an object worthy the combined action of the State and National governments.

To prevent the introduction of Spanish-fever to our herds, the Legislature of 1876 enacted that no Texas or Cherokee cattle should be brought into the State between the fifteenth day of May and the first of November. Other States in the West, where it had caused great losses, had a similar statute; but, in a contested case before the United-States court in Missouri, it has during the last year been declared unconstitutional, because it attempted to interdict or control commerce between the States, — a power possessed only by Congress. Assuming a like result would follow in a contested case in this State, and that our enactment was void, representations of the case were made to the Legislature at its recent special session for the revision of the Statutes, and the law complained of was stricken from the code. For it was substituted an Act giving the Commissioners power to take possession of all such cattle when brought within the State, and to confine them to the premises of the railroad transporting them, or to make such disposition of them as to prevent the exposure of our native cattle. Sufficient time has not elapsed to decide the efficiency of the Act, but it is apprehended that railroad interests and convenience will interpose serious obstacles to its enforcement. The dangerous and insidious disease of glanders in horses has not diminished since our last report. The germs of the disease appear to be quite generally diffused through the State, except in the south-eastern section, and in the counties of Berkshire and Franklin. The enactment of 1881, removing the obligation to appraise and pay for animals condemned and killed, has materially simplified the duty of the Board, and must eventually diminish its expenditures: it wrongs no man, for the glandered horse is not only valueless to his owner, but a source of constant danger. The municipal officers of the towns or cities have called for the aid of the Board in fifty-seven cases; and of these, forty have been condemned, and ordered to be killed. The Commissioners are firm in the belief, that as soon as horse-owners are cognizant of the fact that no compensations can be received for condemned animals, and that to call for their aid is simply to ask for an order for the death of the subject if found diseased, the owners or officers will destroy all pronounced cases, and hasten the work of suppression.

On the 25th of September the selectmen of Charlemont, in Franklin County, notified the Board of the existence of a malignant and apparently contagious disease in the swine of a farmer of that town, and requested us to take control of the same. The locality was visited, and an examination made of the diseased animals then living, and a *post-mortem* made of one which had died the day of the visit, which established the fact that the disease was hog-cholera, or swine-plague, and in all important respects identical with the scourge which has made such havoc in this class of stock at the West and South. The circumstances attending the development of the case were very unusual and peculiar; but to guard the public along the lines of rail transportation from the recurrence of a like calamity in the future should be placed before the public. It appears, that, on or about the 12th of August, a freight-train on the Tunnel Railroad was derailed a short distance from the Charlemont depot. In the train was a carload of swine billed from the West to some slaughtering establishment near Boston. The animals were released from the cars by the accident; and the State agent of the railroad, to prevent them from straying away, caused them to be driven to, and secured in, the yards of Mr. E. C. Hawkes, a farmer, whose residence was less than a half-mile from the depot. There were one hundred and seventy of the animals, about twenty of which indicated sickness, or slight injuries from the accident, supposably the latter. After remaining in the yards of Mr. Hawkes two days, they were all forwarded to their destination, though several were so feeble that it was necessary to carry them to the cars. Mr. Hawkes was a large owner and breeder of choice swine, and, at the time of the accident, had in his pens adjoining the yards where the Western hogs were confined one hundred and eighteen of these animals of different ages. About ten days after the hogs from the railroad were removed it was noticed that quite a number of them refused their food, appeared sick, and manifested behavior quite like that of the supposed injured animals. The disease developed rapidly: numbers of them soon died, and it spread to all the pens and enclosures. Various remedies were tried without effect; and, at the time the Commissioners were notified, more than half the stock had been lost.

Not knowing the disease with which his swine were troubled, or its cause, and hoping to save some of them, Mr. Hawkes had removed a number to an outlying farm two miles away, and turned them into an open field; but they carried the disease with them, and made another centre of contagion, causing serious alarm throughout the vicinity, to allay which, and remove the difficulty, appeared to require severe repressive measures. As chap. 24 of the Acts of 1878 had extended the powers and duties of the Commissioners for the suppression of contagion among cattle to "the prevention of contagious and infectious diseases among domestic animals," and as this was surely such, and circumstances made it peculiarly dangerous, it was determined to apply the provisions of the law applicable to herds of cattle infested with contagious pleuro-pneumonia. Accordingly, on the 13th of October, the entire stock alive at that date (fifteen in number) were slaughtered. Of these, six on inspection were adjudged free from disease, and were appraised and paid for. Measures were taken for the safe disposition of the carcasses of the diseased animals, and the disinfection of the premises; and there have been no cases on the adjoining farms. That the disease was the dreaded swine-plague of the West, and that it was communicated to Mr. Hawkes's stock by the animals taken from the cars, there is not a shadow of doubt. Through no fault of his own (for the hogs from the cars were taken to his yards in his absence, and without his consent) Mr. Hawkes met with a great pecuniary loss. The result should lead all to great caution against similar exposure. The last appropriation for the purposes of the commission was $2,000.

There have been allowed and paid bills to the amount of $1,949, and there are now outstanding bills to the amount of $600; leaving a deficiency to be provided for of $549. The expenses incurred by the Board the past year have been unusually large, caused by the greater number of calls for aid, the distance travelled, and the peculiar character of some of the cases. The eradication of glanders from one centre of infection at Taunton was effected only by an expenditure of $500. With the facts of the past year before us, if the work of the Board is to be continued, we recommend an appropriation for the ensuing year of $2,500 in addition to the deficiency now existing.

LEVI STOCKBRIDGE,
E. F. THAYER,
H. W. JORDAN,
Commissioners on Contagious Diseases among Cattle.

BOSTON, Jan. 10, 1882.

ANNUAL MEETING OF THE BOARD.

The Board met at the office of the secretary, in Boston, on Tuesday, Jan. 31, 1882, Mr. WILDER, chairman of the Executive Committee, in the chair.

Present: Messrs. Anderson, Baker, Bird, Bowditch, Farnsworth, Fay, Gaylord, Gleason, Grinnell, Goodrich, Hadwen, Haskell, Herrick, Hersey, Hill, Jewett, Lane, Lynde, Mayhew, Moore, Nichols, Pierson, Sessions, Smith, Slade, Taft, Varnum, Ware, Wakefield, and Wheeler.

Voted, To adopt the order of business of the last annual meeting.

Voted, To appoint a committee of three to examine and report upon the credentials of new members,—Varnum, Bird, and Mayhew.

Reports of delegates to the agricultural fairs being next in order,—

Mr. Pierson reported upon the Middlesex South, Mr. Sessions upon the Worcester South (Mr. Bird reported that the Worcester South-east, to which he had been assigned, did not hold any fair), Mr. Hersey upon the Hampshire Franklin and Hampden, Mr. Wheeler upon the Hampshire, Mr. Anderson upon the Highland, Mr. Ware upon the Hampden East.

After an adjournment of one hour, Mr. Hersey was called to the chair, and the reading of reports was resumed.

Mr. Gaylord reported upon the Union, Mr. Herrick upon the Franklin, Mr. Mayhew upon the Deerfield Valley, Mr. Slade upon the Berkshire, Mr. Gleason upon the Housatonic, Mr. Jewett upon the Bristol, Mr. Taft upon the Plymouth, Dr. Wakefield upon the Marshfield, Mr. Goodrich upon the Essex, Mr. Perkins (read by the secretary) upon the Hingham, Mr. Farnsworth upon the Worcester North.

The Committee on Credentials of newly-elected Members submitted the following Report: that they find,—

Dr. James R. Nichols of Haverhill, appointed by the Executive.
E. F. Bowditch of Framingham, elected by the Massachusetts Society.
John B. Moore of Concord, elected by the Middlesex Society.
Velorous Taft of West Upton, elected by the Worcester South-east Society.
Henry C. Haskell of Deerfield, elected by the Hampshire Franklin and Hampden Society.
William R. Sessions of Hampden, elected by the Hampden East Society.
Chauncy L. Buell of Ludlow, elected by the Hampden Society.
Henry Noble of Pittsfield, elected by the Berkshire Society.
James M. Waterman of Williamstown, elected by the Hoosac Valley Society.
Merritt I. Wheeler of Great Barrington, elected by the Housatonic Society.

Edmund Hersey of Hingham, elected by the Hingham Society.
Daniel E. Damon of Plymouth, elected by the Marshfield Society.
Daniel Round of Nantucket, elected by the Nantucket Society.
J. Henry Hill of Amesbury, elected by the Amesbury and Salisbury Society.

Mr. Ware, chairman of a committee appointed at the annual meeting, 1878, to consider applications for the free scholarships offered to the Board by the American Veterinary College of New York, reported upon the action of his committee in the award of the scholarships. The Report was accepted, and it was voted that all present and future applications be referred to the Executive Committee.

The Board then adjourned until half-past nine o'clock on Wednesday.

SECOND DAY.

The Board met at half-past nine o'clock A.M. Mr. Arthur A. Smith was elected chairman for the day.

Present: Messrs. Anderson, Bowditch, Buell, Damon, Farnsworth, Fay, Gaylord, Gleason, Grinnell, Goodrich, Goessmann, Hadwen, Haskell, Herrick, Hersey, Hill, Lane, Lynde, Mayhew, Moore, Nichols, Noble, Round, Sessions, Slade, Taft, Varnum, Ware, Waterman, Wheeler.

Mr. Hadwen reported upon the Worcester North-west Society, Mr. Bowditch upon the Barnstable, Mr. Moore upon the Martha's Vineyard, Mr. Lynde upon the Worcester, Mr. Smith upon the Hoosac Valley, Mr. Baker upon the Middlesex North, Mr. Varnum upon the Middlesex, Mr. Lane upon the Hampden, Dr. Nichols upon the Worcester North-west.

The Board then proceeded to elect a secretary by ballot to serve for one year. John E. Russell was elected.

Messrs. Bowditch, Slade, and Sessions were appointed a committee to assign delegates to the fairs of the societies.

Messrs. Ware, Farnsworth, and Mayhew were appointed a committee upon changes of times of holding fairs.

Messrs. Moore, Lynde, and Hersey were appointed a committee to report a list of subjects for investigation, and to assign committees upon them.

Messrs. Hadwen, Herrick, Moore, Grinnell, and Buell were appointed a committee upon the holding of the country meeting.

Dr. NICHOLS read a paper upon "The Chemistry of Nitrogen in its Relation to Agriculture."

THE CHEMISTRY OF NITROGEN IN ITS RELATIONS TO AGRICULTURE.

The element nitrogen, in its nature and chemical relationships, is not clearly understood among farmers; and this is annoying to many, as it is constantly spoken of in agricultural literature. The cause of this indistinct understanding, or misapprehension, arises from the way in which it is necessary to speak of it in relation to its cost or value as plant-food, and of the office it subserves in vegetable physiology. Nitrogen, in its naked or gaseous condition, is quite unlike its various compounds; and it is only in some one of its combinations that it possesses any interest for the farmer. It has not been unusual for me to receive letters of inquiry asking where nitrogen can be purchased by the pound or ton, and what kind of vessels are needed to hold it. It is certainly desirable that its nature should be better understood.

Nitrogen belongs to a class of bodies which are incapable of influencing any of the senses so far as to be recognized by them. It cannot be seen, tasted, or touched, so as to produce tangible impressions; and it has no order. During all the ages, until within a little more than a century, mankind were wholly ignorant of its existence. It is a form of matter found in a permanently aeriform state, or as a gaseous body, which, under no ordinary or usual conditions, can be made to assume a solid or liquid form. The atmosphere is its home and hiding-place; and therefore it is constantly in close proximity with our bodies, and with every thing existing upon the earth. It passes into the cavity of the lungs of all breathing animals at every inspiration, traverses the circuit of the air-cells, and is expelled as nitrogen, without diminution of volume, or any chemical change whatever.

The volume of free nitrogen in the air is immense; and its weight, as it rests upon the earth's crust, can only be understood by a consideration of the figures which approximately represent it. The nitrogen of the air can be separated from the oxygen and other gases and vapors present over the earth's surface, and weighed. One thousand pounds of air contains of

	Pounds.
Nitrogen	7.55
Oxygen	2.34
Carbonic acid	.01
Aqueous vapor	.10
	10.00

The whole weight of the nitrogen contained in the gaseous envelope of our planet may approximately be stated to be 3,994,592,925,000,000 *tons*.

The commercial value of nitrogen, as presented in the estimates of chemists who make analyses of fertilizers, is about twenty cents a *pound*. Apply this price to the great volume of nitrogen around us, and the value would reach a point almost beyond the reach of figures to demonstrate. For crop purposes, the nitrogen of the air is valueless to the farmer; for, although it comes in direct contact with his soils, mingles with them to considerable depths, the spongioles of plants, penetrating everywhere, are not endowed with the power of appropriating it to their uses, or combining it with their structures. It also comes in direct contact with the surfaces of plants above ground; but this contact is productive of no combination or assimilation: vital plant-structures and dead nitrogen, when brought together, do not permit of the play of chemical affinities which result in chemical unions. From a careful and candid consideration of the experiments which have been made towards ascertaining whether there is any absorption of nitrogen by the leaves or other external organs of plants, I have no hesitation in saying that they must be regarded as complete failures. The affirmative results which some experimenters state to have been reached are totally unreliable; and the question stands to-day a settled one, and that in the negative.

Nitrogen in many of its aspects, and in its behavior, must be regarded as the most remarkable of all the elements. The popular notion of its use in the atmosphere, that it is simply a diluent of oxygen, is probably correct. It must subserve other and important purposes; but, to ordinary observation, it appears to have been supplied by the Supreme Intelligence for the main purpose of so attenuating oxygen as to keep it within safe bounds as a respiratory agent and supporter of combustion. It is the most stupid, so to speak, and negative, of the large family of elements. It resists chemical combinations with remarkable persistency; and, when forced into such unions, the affinity is slight, and disruption is easy. It may be said to be the most unimportant and yet the most important of all the elements, — a paradoxical statement easily comprehended by every chemist. It is docile, negative, unaggressive in its natural state; but, when forced into combination with oxygen, it gives us acids with teeth sharp enough to gnaw a file. When combined with potash, and the resultant salt mixed with a little sulphur and charcoal, it gives us gunpowder, — an agent well known to possess extraordinary properties. When associated with the bland and sweet substance known as glycerine, it forms nitro-glycerine, dynamite, lithofracture, giant-powder, — agents so terrible as to appall mankind by their destructiveness. Shreds of cotton picked from the ripened bolls which open to the southern sun, when placed for a few moments in the acid which is born of nitrogen, suddenly lose their innocent nature, and each becomes a giant in power, capable of levelling forests and mountains at the touch of fire. Nitrogen forms the basis upon which rest the great chemical forces so destructive, and yet so useful to the race. It comes out of its chemical unions with a crash, terrible and irresistible; but it at once assumes its usual dead condition, and floats in the air with all the harmlessness of the summer breeze. When introduced into the human or animal organism, it originates and sustains nervous or muscular force. We move our limbs, and conduct the physical labors of life, through the agency of nitrogen or its compounds. Our animals, the oxen and horses which we rear, are only serviceable in the yoke and harness through the changes resulting in the combinations and elimination of nitrogen. After it has served its purpose in the body, it does not, as a whole, escape into the air, as when it is set free by explosions, but it appears in the liquid and solid excrement in certain forms of combination, which, to become fixed and serviceable as plant-food, must receive intelligent care. The proneness of nitrogen to disassociate or free itself from its combinations is seen in the changes which excrement undergoes soon after leaving the animal organism. So long as nitrogenous compounds are controlled by the vital forces of animal life, they are held in check, and their equilibrium is preserved; but, as soon as the external air is reached, it struggles to free itself from its environments. The highly-organized compounds take on fermentative changes: hydrogen (another gaseous body) is evolved, and the nitrogen is led into an alliance with this element in such proportions as to form ammonia. Ammonia is distinguished for its volatility, or readiness of escape, whether it be free or in the form of a carbonate. When nitrogen seeks to escape through this agent, it must be fettered by forcing it into new and stronger combinations. The sulphate of ammonia is a stable body, capable of restraining nitrogen; and hence if we apply to fermenting manure-heaps sulphate of lime, or what is known as plaster, sulphate of ammonia results through a process of double decomposition, and we have a nitrogenous salt, permanent, and well adapted to the purposes of plant-nutriment.

It has already been stated that nitrogen has no value for farm purposes in its elementary, gaseous state; but, when in chemical union with oxygen or alkaline bases, it becomes a factor in successful husbandry of the first importance. An interesting inquiry arises at this point: Through what natural agencies is nitrogen fitted to become plant-food? How does it happen that an element so shy and indifferent is found in soils in a combined state, so as to be assimilable by growing vegetation?

Investigations made at my experimental farm in Essex County during the past twenty-five years lead to the conclusion that the most prominent source of fixed nitrogen found in soils comes from the atmosphere. I am quite certain that most chemists are in error in regarding as of comparatively small consequence this source of the agent. The view that nitrogen and ammonia are simply accidental agents in the air, and very sparsely diffused, is founded upon incorrect or superficial experiment and observation, and must, it seems to me, be abandoned. Experiment and observation have convinced me that nitric acid and ammonia are essential and natural constituents of the atmosphere, and of so much importance, and so considerable in amount, that by no means can they be made to take a secondary place in any estimate of the sources of nitrogen in soils.

Quite early in my farm experiments, before science had shed so great light upon the chemistry and physiology of plant-growth, I was perplexed to understand how it happened that the quantity of nitrogen removed in a series of crops was much greater than that contained in the manures employed, and this, too, when percolating rains and drainage were carrying away no inconsiderable quantity. Analysis proved that nitrogen was present in large quantities in some uncultivated, or virgin, soils on my farm; and also it was found in considerable amounts in the swamp-muck contiguous to my uplands, — areas which had never been cultivated, or received a particle of manure from any source. It became not only evident that nature has hidden sources of supply, but that in some way a remarkable equilibrium is maintained between want and supply, without the husbandman's intervention.

Experiments upon fields, cropping without supplying nitrogenous manures, carried on over a period of fifteen years, gave crops of the cereals in diminished amounts. The soil at the end of that period afforded, upon analysis, evidence of the presence of nitrogen, although the quantity removed in the crops was much greater than was contained in the soil at the commencement of the experiments. This proved that somehow, from somewhere, nitrogen was spontaneously furnished in the ordinary processes of nature.

The amount of nitrogen returned to the soil in the husbandry of the early settlers in this country was really very small. The manures they produced from their animals were so slovenly cared for (being exposed to rains and snows, and allowed to drain away into marshes and ditches), that they were of small nitrogenous value when used in the field. They could not, indeed, be of high value when well protected, as the grasses upon which the animals were fed were of a low order and of inferior quality. The virgin soils, when well situated, were rich in nitrogen, and gave heavy crops of wheat and other cereals; but they gradually languished, until the raising of wheat, a grain demanding much nitrogen, no longer proved remunerative, and its cultivation, to a large extent, ceased.

New-England soils, at the dawn of scientific agriculture thirty years ago, were apparently in a fixed condition: fifteen or twenty bushels of corn could be got from an acre, small crops of barley or oats, but no wheat in paying quantities. The supply of nitrogen was at a minimum; and it probably varied but little from year to year, unless on fields which received more enlightened culture from owners than was usual throughout the country.

These facts all tend towards one conclusion, — that the spontaneous supply of nitrogen on soils physically well adapted to grains and rich grasses is tolerably constant, and is sufficient for the sustention, growth, and maturity of small crops from year to year, without additions from outside sources. Some lands, originally well supplied with nitrogen, become sterile under repeated croppings with the cereals; but such are peculiar in physical characteristics, and not well adapted to receive and retain manures of any kind. As is well known, the tendency of all soils is towards exhaustion, when drawn upon by successive crops of the noble grains and grasses; but this exhaustion seems to have a limit, so far as it is due to loss of nitrogen.

As gaseous nitrogen is rejected by plants, we must assume that it reaches them through the nitric acid and ammonia always present in the atmosphere. Every shower of rain, every fall of snow or dew, brings with it to the land a variable but large supply of these bodies; and they are diffused through the moist earth, and held for the use of vegetation. It is a very remarkable and significant fact, that the amount of nitrogen supplied through the sources indicated varies on different fields, often on the same farm, and under similar meteorological conditions. This fact has not been noticed by writers and experimenters, so far as my knowledge extends.

It appears clear, from the results of experiments at my farm, that no two fields receive precisely the same amount of natural nitrogenous products in a single season, or in a succession of seasons; and I am inclined to think it is a law of nature, that the physical conditions of soils (conjoined, perhaps, with chemical conditions) determine the amount of nitrogen they are capable of receiving. It may be true, that, if we only knew just what conditions are requisite, the spontaneous supply of nitrogen could be made ample for all our wants. It seems to me that facts and observation point in this direction; and the suggestion, though new, is worthy of consideration.

I have found that fields kept in high culture by constantly stirring and pulverizing the soil, without the use of nitrogenous manures, uniformly gave a much higher percentage of nitrogen, upon analysis, than adjacent fields which were comparatively at rest, the crops being the same in kind. It is well known that a crop of clover raised upon a field, and turned under in a green state, adds greatly to the fertility of the field by increasing the supply of nitrogen. I have found, upon analysis of the soils of such fields before and after the decay of the clover, that the nitrogen present was greater after the crop than the amount originally present in the soil added to that contained in the clover. If the leaves and external organs of clover are incapable, as we feel certain they are, of assimilating gaseous nitrogen, it may be they are capable of appropriating nitrogen in the form of nitric acid and ammonia from the air. I have not conducted experiments far enough in this direction to settle the matter in my own mind; but I know the view quite generally prevails among chemists, that it is not through the roots alone that clover, and perhaps some other plants, receive nitrogenous food. We are still much in the dark upon this interesting question: it is a darkness, however, which I am confident will be dissipated by further and more intelligent research.

As regards the sources of the compounds of nitrogen in the air, I have only to point out the agency of the electrical forces, and the escape of free ammonia from industrial establishments, putrefactive fermentations, and a thousand other natural and artificial sources. How far the play of electrical activities in the atmosphere, which are silent and unseen, may conduce to the union of nitrogen with oxygen, we do not know; but we have good reason to suppose they are by no means insignificant. We do know that nitric acid is produced in large amounts during thunder-storms, when disruptive discharges of electrical force are constant and powerful; and during cyclones and tornadoes the production must be immense.

I have only to add, that, in the view of many chemists, the electrical influences in the soil promote the fixation of free nitrogen to certain substances; and hence supplies of nitrogenous aliment reach plants through this agency. It is tolerably certain that this view is correct; but, to how great extent this change is carried, we do not know. We do know that through the process of nitrification, so called, nitrogen in soils under peculiar conditions is forced into combination with the alkaline bases, potash, soda, and lime; and it may be that other changes are occurring, tending to fix free nitrogen, which we are ignorant of at present.

Conclusions based on the present state of knowledge lead to the belief that the sources of nitrogenous compounds in nature, brought, or capable of being brought, within the reach of vegetation, are more numerous, and the supply much greater, than has hitherto been supposed. There is, indeed, much to support the pleasing hope that ultimately, or in the near future, our knowledge will be so extended as to make it easy to aid Nature in producing the chemical union of nitrogen with oxygen, and utilizing the products on our lands.

The researches of a quarter of a century in the field and laboratory lead me to conclude that nitrogen in available forms will not long command the high prices which it now sustains, as presented in industrial products. Within a third of a century we have had opened to us inexhaustible supplies of the other two great essentials of plant-food (potash and phosphoric acid); and it is through a clearer understanding of chemical reactions and Nature's laws that nitrogen is to be supplied to agriculture under such conditions as to immensely promote the interests of husbandry.

This essay was followed by discussions and questions that were answered by Dr. Nichols and Professor Goessmann.

Mr. Bowditch, from the Committee upon the Assignment of Delegates, reported as follows: —

DELEGATES TO FAIRS OF COUNTY SOCIETIES.

	TO	AT
Mr. GLEASON	*Essex*	Haverhill.
Mr. NICHOLS	*Middlesex*	Concord.
Mr. MAYHEW	*Middlesex North*	Lowell.
Mr. ROUND	*Middlesex South*	Framingham.
Mr. FAY	*Worcester*	Worcester.
Mr. ANDERSON	*Worcester West*	Barre.
Mr. BIRD	*Worcester North*	Fitchburg.
Mr. HERRICK	*Worcester North-west*	Athol.
Mr. GAYLORD	*Worcester South*	Sturbridge.
Mr. HASKELL	*Worcester South-east*	Milford.
Mr. JEWETT	*Hampshire, Franklin, and Hampden*	Northampton.
Mr. WARE	*Hampshire*	Amherst.
Mr. BUELL	*Highland*	Middlefield.
Mr. GOODRICH	*Hampden*	Holyoke.
Mr. FARNSWORTH	*Hampden East*	Palmer.
Mr. TAFT	*Union*	Blandford.
Mr. DAMON	*Franklin*	Greenfield.
Mr. SLADE	*Deerfield Valley*	Charlemont.
Mr. MOORE	*Berkshire*	Pittsfield.
Mr. HADWEN	*Hoosac Valley*	North Adams.
Mr. BOWDITCH	*Housatonic*	Gt. Barrington.
Dr. LYNDE	*Bristol*	Taunton.
Mr. WHEELER	*Plymouth*	Bridgewater.
Mr. NOBLE	*Hingham*	Hingham.
Mr. VARNUM	*Marshfield*	Marshfield.
Mr. SESSIONS	*Barnstable*	Barnstable.
Mr. GRINNELL	*Nantucket*	Nantucket.
Mr. SMITH	*Martha's Vineyard*	West Tisbury.
Mr. HERSEY	*Amesbury and Salisbury*	Amesbury.

Mr. Hadwen, from the Committee on the Country Meeting, reported that invitations had been received from Great Barrington, Holyoke, Worcester, and Northampton, and, after hearing all claims, the Committee had unanimously decided upon Northampton, the time to be Dec. 5, 6, and 7.

Voted, That the Executive Committee prepare a list of questions for the use of delegates to the fairs, and present them to the Board for adoption.

Mr. Wheeler, from the Committee upon the Agricultural College, was by vote permitted to make a verbal report.

Messrs. Sessions and Damon were elected members of the Committee on the College, in place of Messrs. Bowditch and Wheeler, whose terms had expired, making the Committee stand in the following order: —

Messrs. Lynde, Jewett, Slade, Sessions, and Damon. This Committee was instructed to choose a chairman, who would report to the Board at the next annual meeting.

On motion of Mr. Grinnell, the secretary was ordered to wait upon the Governor, and get his instructions in writing defining the duty of the Board as overseers of the College under the statute.

The secretary read a memorial to the Board from Mr. John Kenrick of Cape Cod, asking its influence to secure further legislation in regard to repression of forest fires. This led to discussion; and it was resolved that the State Board of Agriculture recommend such further legislation as shall be thought practicable for protection against forest fires.

Messrs. Hadwen, Anderson, and Haskell were appointed a committee to report names of delegates to form the Executive Committee.

Messrs. Hersey, Bowditch, and Moore were appointed a Committee on Printing.

The Board adjourned until ten o'clock on Thursday, Feb. 2.

THIRD DAY.

The Board met at ten o'clock A.M., Mr. TAFT in the chair.

Present: Messrs. Anderson, Bird, Buell, Damon, Farnsworth, Fay, Gleason, Grinnell, Goodrich, Goessmann, Hadwen, Haskell, Herrick, Hersey, Hill, Lane, Lynde, Mayhew, Moore, Noble, Round, Slade, Sessions, Taft, Varnum, Ware, Waterman, Wheeler, Wilder.

Mr. Anderson, from the Committee to report Names to form an Executive Committee, reported, —

Messrs. Wilder, Hadwen, Bowditch, Slade, and Moore, who were elected.

Mr. Ware, from the Committee on Changes of Times of holding Fairs, submitted his report.

REPORT OF COMMITTEE ON APPLICATIONS FOR CHANGES OF TIMES OF HOLDING FAIRS.

Several petitions, signed by members of the Berkshire Society, have been presented, requesting that the time for holding its fair might be changed from beginning on the first Tuesday of October to the third Tuesday of September. After a full hearing given to the petitioners and remonstrants, your Committee is of the opinion that the change cannot be made without seriously affecting the best interests of other societies, and the agricultural interests of Berkshire County, and therefore recommends that the petitions be not granted. It is recommended that the Middlesex Society, at its request, be allowed to begin its fair on the fourth Tuesday instead of on the fourth Wednesday of September.

Your Committee further recommends that the Amesbury and Salisbury Agricultural and Horticultural Society hold its fair on Thursday and Friday, Sept. 21 and 22.

As no other changes have been requested, the assignments of the other societies remain as before.

The Report was accepted.

Mr. Moore, from Committee to present Subjects for Investigation, reported, —

"Raising and selecting Field and Garden Seeds." O. B. Hadwen.

"Construction of Silos; Use and Value of Ensilage." B. P. Ware.

"How to keep Boys on the Farm." J. B. Moore.

"Unimproved Lands of the Commonwealth." Daniel Round.

"Value of a Protective Tariff to the Farmer." Joseph S. Fay.

"Preparation of the Soil for Growth of Crops." E. Hersey.

The assignments were accepted by the members designated, and adopted by the Board.

Voted, That the secretary petition the Legislature to establish an agricultural experiment station.

On motion of Mr. Moore, it was

Resolved, That it is the opinion of this Board, that a sum not less than ten thousand dollars should be appropriated by the Legislature for the repair of the buildings of the Agricultural College, and the erection of a small stable, and a further appropriation to build a drill-hall.

On motion of Mr. Hadwen, it was

Resolved, That it is the opinion of the Board, that any agricultural society receiving the bounty of the Commonwealth, that shall support a free scholarship at the Agricultural College, ought to be allowed a sum additional to their annual bounty of seventy-five dollars.

On motion of Mr. Varnum, it was

Voted, That each delegate to the State Board should write a brief historical sketch of his society, to be edited by the secretary, and printed in the next Annual Report.

Dr. J. P. Lynde read the following essay upon "The Sanitary Essentials of the Home and Farm."

Massachusetts affords a great diversity of eligible farm-sites, many most beautifully located, affording fine views of natural scenery worth a journey to behold.

All are convenient to routes of transportation by highway, railroad, or water carriage, communicating directly with markets in town and city. Her climate is changeable and rigorous, her atmosphere bracing and invigorating, the water from her mountain-streams and hillside springs pure, fresh, and abundant.

Within her borders the subtle malaria that in many parts of our country depresses the energies of men by fevers and general unhealthfulness is hardly known or feebly felt.

Yet so diversified is her soil and surface by river, lake, swamp, marsh, alluvial and sandy plain, by cultivation and vegetation, from stately forest to shrub and grass, and so near is she to the ocean and its influences, that all localities are not equally salubrious and healthy; and, far transcending in importance all considerations of pecuniary profit and natural beauty of situation, are those agencies and influences of Nature affecting the health, comfort, and physical welfare of her people.

THE SANITARY ESSENTIALS OF THE HOME AND FARM.

Of these, the first and most important to be secured is an abundant supply of pure air: therefore the selection of the site for a farm and the buildings thereon should be made with care and good judgment. We would select an elevated situation, where surface-water would find an unobstructed course to valley and brook, with a soil so porous as to allow a free percolation of rain and surface water to a low level. We would study the geological formation, the character, and dip of the underlying strata of rock and earth.

Rocky and stony soils are generally healthy, while a sandy soil may or may not be, depending on its freedom from, or its containing, a large amount of organic material in its strata to ferment and decay. Whether it rests on an impervious bed of clay, or has clay in its composition, such a soil will be wet, cold, damp, and unhealthy.

A healthy soil, after a storm, will readily become dry by evaporation and percolation, and have the power to absorb moisture and heat from the air.

We would examine the composition and structure of the ground about and under the spot for the house in respect to the organic constituents it might contain.

The superficial layer of all soils is more or less rich in organic material derived from vegetable and plant growth: where this is found in large quantities deep in the earth, as in alluvial and drift soils, the changes attending its decomposition from the gaseous emanations constantly given off may so affect the ground-air as to make the situation unhealthy.

The condition of the ground-water, its purity, and depth from the surface of its level, and its fluctuations, should be ascertained. Sites with a low level and great purity of the ground-water are the most desirable and healthy.

All soils are derived from the disintegration of the rocks, and the organic remains of plant and animal growth.

All rocks and soils, without exception, absorb and retain water in their natural state, in their intimate structure; and all soils hold — under varying conditions of density or porosity, modified by vegetable growth and the deeper impenetrable layers, or stratas — either water or air in the spaces between the particles of which they are composed.

This water, chiefly supplied by rainfall and storms, obedient to the law of its nature, seeks by gravitation its level, displacing and forcing air from the earth to the amount of its bulk, it being heavier than air; and, whenever the point of saturation is reached, all the air is expelled.

Nature is said to abhor a vacuum: the ground-air, therefore, often reaches to a great depth, and is in constant circulation.

Its currents are modified by the ground-water, by atmospheric and telluric phenomena, such as heat, cold, storm, wind, barometrical and electrical changes.

The earth is constantly absorbing or emitting this ground-air: it is always loaded with moisture, and more or less impurity, being mixed with gases derived from the fermentation and decomposition of organic material in the soil. It may be laden with miasmatic, morbific agents, causing fevers and debilitating diseases. Therefore the purity of the ground-water and ground-air in the vicinity of a site intended for a dwelling is of the highest importance in their influence upon the health, comfort, and happiness of its occupants.

The site selected may be improved by grading to direct the flow of surface-water from the buildings, and by under-draining by means of tiles. The cellar should be drained by placing tile-drains outside, and lower than the foundation-walls. It should also be coated with a carefully prepared layer of cement-concrete, to keep air and dampness from entering the house from the earth; dryness of soil and air being the chief sanitary essential to be secured in selecting a site for a residence. Speaking upon this point, Dr. Henry I. Bowditch of Boston, who made the subject of consumption (in relation to its causes, and its prevalence in connection with influences derived from the soil) a subject of special investigation, says, —

"In choosing a site for a dwelling-house, the great desideratum is to obtain, not a perfectly *arid* place (for no such spot could be inhabited by man), but a portion of a township which is neither so high as to be exposed to violent gusts of weather, nor so low that moisture will collect around it. Let it be on the side of a hill or plain, open to the south, and, if possible, defended from the north and east, — on a dry, porous soil, through which water freely percolates, and which, even after a rain, retains little moisture.

Dr. James Clark of England says, "Humid, confined situations, subject to great alternations of temperature between day and night, are the most dangerous. Of all the physical qualities of the air, humidity is the most injurious to human life; and therefore, in selecting situations for building, particular regard should be had to the circumstances which are calculated to obviate humidity, either in soil or atmosphere, in every climate.

"Dryness, with a free circulation of air, and a full exposure to the sun, are the material things to be attended to in choosing a residence."

The views of Dr. Bowditch were embodied in an address delivered before the Massachusetts Medical Society in 1862; and in the two following propositions is expressed the results of his investigations.

"First, A residence on or near a damp soil, whether that dampness be inherent in the soil itself, or caused by percolation from adjacent ponds, rivers, marshes, or springy soils, is one of the primal causes of consumption in Massachusetts, probably in New England, and possibly in other portions of the globe.

"Second, Consumption can be checked in its career, and possibly — nay, probably — prevented in some instances by attention to this law."

Subsequently Dr. Buchanan of England, knowing nothing of the investigations of Bowditch, proved that dampness of soil and consumption stood in relation to each other as cause and effect.

Drainage-works had been introduced into several English towns, rendering the soil dryer, and very greatly diminishing the mortality from consumption in proportion to the extent of subsoil dryness.

In Salisbury the death-rate from consumption fell forty-nine per cent; in Ely, forty-seven; in Rugby, forty-three; in Banbury, forty-one.

Under the direction of the privy council, Dr. Simon made an extensive and elaborate investigation of this subject; and he remarks, that "it confirms, without any possibility of question, the conclusion previously suggested, — that dampness of soil is an important cause of phthisis to the population living upon the soil."

In the Seventh Report of the Massachusetts State Board of Health, Dr. Winsor remarks, after investigating the drainage of a hundred and twenty-eight towns in Massachusetts, that "no observer can doubt that a large amount of preventable disease is caused by damp cellars."

The theory of soil-moisture as one of the active causes of consumption through the medium of the air is so confirmed by evidence from different parts of the world, that it may now be regarded as a well-established fact, *pregnant with a significance that cannot be over-estimated.*

Lord Bacon has said, "He who builds a fair house on an ill seat committeth himself to prison."

Air is essential to the life of all organized beings. It is composed of a somewhat changeable mixture of invisible gases. About twenty per cent of oxygen, seventy-nine per cent of nitrogen, and four-hundredths of one per cent of carbonic acid, constitute a normal atmosphere capable of sustaining vegetable and animal life, in so far as this life depends on atmospheric conditions.

Air is rendered impure from various causes. It carries odors, miasms, the gaseous products of animal and vegetable decomposition, dust, dirt, sand, saline matters, the pollen of plants, poisonous animal and vegetable exhalations, the germs of epidemic diseases (such as measles, scarlet-fever, and small-pox), and the varied products of combustion. Dead, confined, stagnant air becomes rapidly impure, and unfit for respiration. In nature, air is constantly kept in motion through the action of heat, cold, and electricity, and is purified by moving over large bodies of water, by diffusion and oxidation, storms and vegetation. Its most important constituent is oxygen, without which all organized beings would perish; while at the same time it is the most destructive agent in nature of all organic forms. It combines readily with all elementary bodies except fluorine.

An atmosphere of pure oxygen would be speedily fatal to animal life; so, also, would one of pure nitrogen, which is a gaseous body, having no affinity for animal tissues, like oxygen, and is incapable of being absorbed in respiration, though it is a constituent of all the tissues except the fatty, which are chiefly carbon. It dilutes the oxygen, renders it respirable, and modifies its destructive force. Carbonic acid is essential to plant-growth, but, when it is present in air in a high percentage, is speedily fatal to animal life by causing spasm of the larynx and consequent asphyxia. In its pure state it is irrespirable, and negatively poisonous.

We find it mixed with the deadly carbonic oxide in deep wells that have long been covered: and it has long been a custom with men who are about to descend into such wells to first lower a lighted candle, and, if it would continue to burn (showing the presence of oxygen), they would venture to descend; but this is no certain test that the air is safe, and fit for respiration, for life may speedily become extinct in an atmosphere in which a candle will continue to burn. The only safe procedure is to force fresh air into the well to displace the accumulated gases, before attempting to descend.

Carbonic-acid gas is pleasant and piquant to the taste, and agreeably cordial to the stomach.

Fuming champagne, sparkling cider, and the so-called soda-fountain, owe their agreeable qualities to this gas.

It is a product of the process of fermentation, is generated in yeast, is absorbed by the gluten of flour, which gives us, when properly kneaded and baked, the light, porous, spongy, well aerated bread of the skilful housewife. It issues from the earth in the vicinity of volcanoes, and from fissures in the rocks. It is generated in the bodies of men and animals by the destructive metamorphosis of tissue, and the processes of digestion, assimilation, and nutrition, and is excreted chiefly by respiration. It is one of the chief products of combustion, and is indispensable to vegetable growth. It is found in high percentage in soils, in the air of close bedrooms, halls, schoolhouses, shops, and churches that are occupied and poorly ventilated.

Surrounded by climatic influences too severe for endurance, we are obliged to enclose a small space or portion of air for a habitation, to shelter, protect, and make us comfortable.

For seven months of the year we must resort to artificial means of warming the air of our dwellings.

It is essential to the comfort of a pleasant home that the entire of the house should be warmed,—halls, living and sleeping rooms,—it being just as healthy to live and sleep in a warm as a cold room (and far more comfortable), good abundant ventilation being always secured.

In the "olden times," the spacious open fireplace, set in a huge chimney, with its roaring wood-fire, served to warm the living-room, and secure excellent ventilation. The sleeping-rooms, being unwarmed, were, in severe weather, cold, and uncomfortable to the last degree.

The old fireplace and hearth-stone have been torn out, a small chimney built, and the air-tight stove for wood or coal has taken its place, to heat, not warm, the room; to prevent, not secure, ventilation, especially when aided by double windows. Hot-air furnaces (a modified form of hot air-tight stove), hot water circulating through pipes, and steam, which are essentially alike in their operation, are now used to warm our best and most comfortable dwellings.

No device for warming is so cheerful, agreeable, and so healthy, as the open stove, grate, or fireplace, and none so expensive to maintain. The Galton stove is, perhaps, a more excellent arrangement, and more economical.

Next comes the furnace, which, when properly constructed with tight joints to prevent the escape of the poisonous coal-gases, and when freely supplied with fresh air and water for evaporation, does very well; but undoubtedly the very best, most safe, cleanly, and powerful heating apparatus is a low-pressure steam-boiler with direct or indirect radiation.

Whatever may be the sources of artificial heat, it is essential to the purity and healthfulness of our houses that ventilation and renewal of the air be secured by night and day. For this purpose the most simple devices that will use or control the forces of nature are the best.

Chimneys should be built in two compartments of suitable size, smoothly plastered on the inside,—one for the products of combustion; the other, for ventilation. The cellar, and every living and sleeping room in the house, should have openings at the top of the room leading into the ventilating-shaft, regulated by registers. Heat from fires and smoke will warm the air in ventilator, and produce a strong upward current: at the same time, air as fresh and pure as can be obtained may be admitted from out of doors, sufficient to furnish each occupant of a room with from fifteen hundred to two thousand feet per hour, or in sufficient quantity to keep the inside free from impurities that can be detected by the senses of those who may enter the room from the outside open air.

This may be accomplished, in such a manner as to avoid disagreeable and dangerous currents, by lowering the upper sash of the window, having a thin, narrow strip of board so attached as to direct and diffuse the inflowing current through the upper air of the room; or the lower sash may be raised three inches, and a piece of board or thick stuff fitted to fill the space under the sash: this will allow air to enter freely through the opening at the middle of the window, with an upward current. An additional supply can be secured by having the thick piece of lumber used to fill under the sash so made as to project an inch and a half inside the lower border of the sash; then perforate with three-fourths inch augur-holes bored horizontal from the outside nearly through to meet perpendicular holes from the inside opening just within the sash. A slide can be adjusted to close the openings, when desired, and the style of construction and workmanship widely varied to suit individual notions.

These devices, though simple, are very effective. The inflowing currents are given an upward direction, and so broken as to prevent discomfort, annoyance, and danger from taking cold.

To maintain a temperature at sixty-five or seventy, with such a constant renewal of the air, will require a larger expenditure for fuel: so the question of ventilation and pure air often resolves itself, in the mind of a calculating Yankee, into one of dollars and cents; and he will question and doubt the expediency, economy, and necessity of the outlay, and neglect or refuse to secure for his family the blessings of this sanitary essential, pure air.

Very likely he will put on double windows, and fill up every crack admitting fresh air, heat one living-room with a close iron stove, and wonder why his wife should suffer so constantly with headache and nervous irritability, — weak, peevish, pale, cross, and unsocial, — and his children be so tormented with colds, coughs, fevers; unable to bear the least exposure without illness of some kind; growing puny, sickly, unpromising, deficient in physical vigor, mental activity, energy, and courage; often requiring the services of the family doctor, with the disagreeable resources, appliances, comforts, and blessings of his mysterious art.

The wife and daughters, being more confined in-doors, suffer more than the father and sons. Then secure for their health, comfort, and happiness a home made comfortably warm in every part, filled with pure air, and made cheerful with glowing sunlight; supply a varied diet of substantial food, and clothing ample for protection; and they will need no iron for the blood, to keep the roseate tint of health on cheek and lip; no tonic for a weak stomach, poor appetite, impaired digestion; no artificial support for weak shoulders and crooked spines: study, exercise, and work will be to them a delight and recreation.

The consequences of breathing impure, stagnant, dead air, contaminated by respiration and bodily exhalations, are hardly understood, and but little appreciated in the community.

As stated by Dr. Parkes, "A man ordinarily gives off from twelve to sixteen feet of carbonic-acid gas in twenty-four hours by respiration, and an undetermined quantity by the skin.

"There is often exhaled from skin and lungs, in the form of vapor, from twenty-five to forty ounces of water, requiring two hundred and eleven feet of air per hour to maintain it in a state of vapor. The amount of organic matter has never been accurately ascertained; but it has been estimated at thirty grains per day for an adult. That from the lungs will darken sulphuric acid, decolorize a solution of permanganate of potash, and renders pure water offensive. . . . Collected on the surface of a globe containing ice-water, it is glutinous and sticky, having a disagreeable smell. It is precipitated by nitrate of silver, blackens platinum, yields ammonia, and albuminoid ammonia when distilled with the alkaline permanganate, as stated by Wanklyn, a German chemist, and is therefore nitrogenous. . . . It will attach itself to the walls of a room, and to furniture. It is absorbed by clothing, carpets, damp paper, and other substances, and is very slowly oxygenized." The woman who cleans the house and washes the clothing understands the filthy nature of the exhalation.

Its presence in any considerable quantity is readily detected by the sense of smell whenever we enter, from the open air, occupied halls, school-rooms, shops, living-rooms, sleeping-rooms, that are not properly ventilated. Its ill effects upon animal and human life have been often demonstrated by experience and experiment.

Witness the oft-quoted horror of the black hole in Calcutta, where, in a room eighteen feet square, with only two small windows, a hundred and forty-six Englishmen were confined at eight o'clock in the evening (at six the next morning, all but twenty-three were dead); and the account of the steamer "Londonderry," where a hundred and fifty passengers were confined in a small cabin for several hours, the deaths amounting to seventy; and the prison, where, after the battle of Austerlitz, three hundred Austrian prisoners were confined (two hundred and sixty of them died very speedily).

"In all these instances death was caused, not by excess of carbonic acid, but by excess and concentration of animal exhalations, and a deficiency of oxygen."

Gavarret and Hammond have experimented repeatedly with animals, removing the watery vapor and carbonic acid, leaving the organic matter alone, and have conclusively proved that this organic matter is highly poisonous, and may be speedily fatal.

Evidence on this point is cumulative and conclusive. The records of jails, prisons, ships, hospitals, and armies, wherever men have been confined in large numbers in close, ill-ventilated quarters, always show the same results.

Such being the effects of breathing an air thus highly vitiated, it is clearly apparent that the continuous breathing in our homes, of an air rendered moderately impure from organic exhalations, must injuriously affect the health of those subject to its influence; and common observation and experience confirms this as true.

Such persons are troubled with headache, neuralgia, debility, weak digestion, faulty assimilation, impoverished blood, impaired nutrition of nerves and muscles, and consequent loss of normal nervous energy, and that cheerful, hopeful spirit necessary for efficient activity and the highest possible attainment of success and happiness in life.

Besides these general effects of impure air, its relation to specific diseases is important, considered as a cause which is most fully proved.

Scrofula, the great enemy of all civilized races, in its many forms, arises from several causes acting upon the individual, such as hereditary predisposition, syphilis, scant clothing, poor food, cold, heat, dampness, uncleanliness, and excesses of every kind; but over all these, in importance, stands impure air, for these other causes may often be controlled or obviated. This cause, aided by one or more of these coincident conditions, is recognized all the world over as potential in the production of consumption, bronchitis, and pneumonia; and the popular belief that these diseases are caused by exposure to the weather, and changes in temperature, is not altogether correct, for there is abundant evidence to show that this cause is subordinate to several others.

Again: it has long been considered that an atmosphere, vitiated by the organic vapors and particles given off from the person, in addition to these effects that have been mentioned, favors the more rapid spread, and increases the virulence, of acute, infectious diseases, such as scarlet-fever, small-pox, measles, typhus, and the plague.

The exudations from the sick load the air of the sick-room with a vast amount of organic matter most injurious to breathe, increasing the severity of the disease, and retarding convalescence in all conditions attended with a febrile movement.

In hospitals, when a certain degree of contamination is reached, erysipelas and hospital-gangrene appear to condemn existing sanitary conditions; for these diseases never occur when men are treated in tents in the open air.

An abundant supply of reasonably pure water, for drinking, cooking, cleanliness of person, clothing, and habitation, is another sanitary essential of the home and farm.

Good potable water, when examined in a glass, should be limpid, colorless, odorless, and tasteless. Absolutely pure water is not found in nature: it is obtained only by distillation, is flat and insipid in taste, and not suitable for drinking, unless aerated, or made to absorb air.

Water covers three-fourths of the surface of the earth. It is an essential constituent of soils and almost all mineral substances, being present in the form of water of crystallization. It is indispensable to animal and plant life, constituting from twenty to ninety-nine per cent of their substances, and about three-fourths of the weight of man and animals. It is chemically formed by a union of two gases (hydrogen and oxygen), and is a peroxide of hydrogen, or hydrogen oxide.

Water is the great diluent and solvent in the vast laboratory of nature, and is essential to every chemical and vital change modifying the action of these forces, which are constantly at work upon and within all atoms of matter, modifying their arrangement, their mutual relations, and producing all the diversified phenomena with which we are acquainted.

Water is in constant motion, — a condition essential to the freshness and life of both water and air. Evaporated by wind and solar influence, it loads the atmosphere with its vapors, which, condensed, form clouds, and is precipitated on land and sea, in rain and snow, or hail. That, falling upon the earth, flows over its surface, or percolates more or less deeply into its strata, to emerge again, forming springs, ponds, brooks, and rivers, which flow in ceaseless currents to the sea; so that the rivers are never empty, and the sea is never full.

Water for house and barn may be obtained from rain, brook, river, spring, and from the earth by digging a well.

Rain washes out and dissolves the impurities of the atmosphere; such as, dust, organic matter, living and dead infusoria, the products of combustion, the gases of the air, oxygen, nitrogen in the form of ammonia, carbonic acid, and other matters.

When used for domestic purposes, it must be stored in reservoirs, and carefully filtered. They should be built under ground, of sufficient capacity to hold an abundant supply, with walls of brick laid in cement, the space between earth and wall filled either with clay or earth, carefully puddled in with plenty of water. A well of brick, laid in cement, should be built in the centre, with openings at the bottom to admit the water. Animal charcoal may be placed in sufficient quantity outside the base of the well, and the remainder of the cistern filled with clean sand free as possible from organic deposits.

The water, collected from the roof of house or barn, percolates through the sand to the central well, from which it may be pumped. Thus filtered, it is very free from impurities, is soft, clear, and potable. Such a cistern can be readily cleaned, and the sand renewed.

Another excellent method is to build in the same manner, in form of a jug, with a manhole in the top, and a partition of soft burnt bricks laid in cement separating it into two compartments. The water is delivered into one, is filtered through the porous brick partition into the other in a good state of purity. Such a cistern should be frequently cleansed, and the filtering-wall rebuilt with new bricks.

A house forty by twenty, with a rain-fall of forty-one inches, will furnish an average of sixty-five gallons a day. Other methods of filtration may be used, but these are the most simple, cheap, and efficient. Rain-water stored in open wood or lead-lined cisterns is often very impure, and highly poisonous, — fit only for washing-purposes.

Brook and river waters are often used. They are modified in quality by the ground from which their waters percolate, or over which they flow, whether gravelly, marshy, or clayey. They may hold in suspension or solution mineral or vegetable substances, or may be quite pure and suitable for use. An examination of their sources, their liability to become contaminated, and their sensible properties, is usually sufficient to determine their purity.

The waters of ponds, either natural or artificial, if fed by streams of abundant volume (unpolluted by sewage, the wash of cultivated fields, and the refuse of manufactories), if resting on a rocky, gravelly bed, and so deep that the sun cannot warm the underlying earth sufficient to cause fermentation, and stimulate vegetable growth to any great amount, are as pure and fit for domestic use as any that can be obtained.

The only objection to the use of such water is its warmth in summer, and consequent insipidity, which may be corrected by ice, and its liability to be affected by certain vegetable growths which render the water offensive to both taste and smell.

Spring-waters may be pure or impure. Their character is determined by the nature and composition of the rocks over which they flow, and the soil or earth through which they filter. They may be tasteless, odorless, and colorless, and yet be so highly charged with carbonates of lime and magnesia, and other saline compounds, as to be unfit for domestic purposes.

In Massachusetts the underlying rocks are granitic, and the minerals, quartz, mica, felspar and iron.

The springs are generally pure, cool, and healthful, except in some localities where iron is found, where they may be so highly charged with the iron salts, the carbonates, sulphates, or sulphurets, as to be hard, brackish, and unfit for use.

An inspection of the rocks in the locality, and the deposits on the ground over which they flow, is usually sufficient to indicate their nature. With us, water from a pure, clear, cool spring, having a steady, abundant flow, both in summer and winter, is highly prized for domestic and farm purposes.

From time immemorial, all races of men, even nomadic tribes, have obtained their water-supply chiefly from the earth by digging a well. The advice of a dying Arab chieftain to his son, who asked what he should do to bless his tribe, was, "Dig a well."

In that land of arid plains and sandy deserts, the old patriarch of a restless, wandering Arab tribe understood the value, comfort, and blessing of a good well of water. No such admonition is needed in our times, when almost every house outside of cities has its well, from which domestic wants are supplied.

To us as a people the Scripture of ancient times may be applied with truth: "For the Lord thy God bringeth thee into a good land, a land of brooks of water, of fountains and depths that spring out of valleys and hills. . . . I will open rivers in high places, and fountains in the midst of the valleys: I will make the wilderness a pool of water, and the dry land springs of water."

After digging a well, "Then Israel sang this song, Spring up, O well; sing ye unto it: the princes digged the well, the nobles of the people digged it, by the *direction of* the law-giver, with their staves."

Water in the earth is supplied from rain-fall, which is modified in its quality by the soluble materials and gases which it absorbs in its descent through air and earth to reach its level. It will therefore vary in purity. It may be fresh or saline, hard or soft, free from or loaded with organic or inorganic impurities, suitable for the use of man, or so polluted as to be dangerous to health and life. It is purified by percolating through sand and gravel, and by oxidation. It moves through the earth in currents, varying in velocity by obstructions presented by the different physical conditions it encounters in its course to the sea.

Its probable purity can be generally ascertained by examination of the soil, rocks, and wells in the vicinity.

If necessary, pits may be dug to expose the character of the underlying strata for inspection. If gravelly, and free from alluvial deposit-sand mixed with clay, infiltrated with vegetable products, and free from soluble inorganic materials derived from the disintegration of limestone and ferruginous rocks, and if the locality can be protected from an influx of surface-water, and pollution by filth, a well may be sunk to below the level of the ground-water, that will afford an abundant supply, suitable for house and farm purposes, which will yield for centuries its pure life-giving treasure to generation after generation, who will

> "Find it the source of an exquisite pleasure,
> The purest and sweetest that Nature can yield."

From whatever source our water-supply is obtained, convenience requires that it should be conducted through pipes and conduits to the place of use at house and barn. These may be made of wood, cement, earthen-ware, lead, block tin, iron, gutta-percha, and other materials.

The well-sweep and "old oaken bucket" of our fathers has been supplanted by the more convenient pump of wood, copper, or iron. The aqueduct made of logs, to bring the waters of the hillside spring or brook, has been exchanged for pipes of lead, iron, or earthen-ware.

We should be careful not to lose in purity of supply, by our new methods, what we gain in permanence, and economy of outlay. Of all materials used for conduits, lead is the most dangerous to health and life.

Pure soft water, and waters charged with carbonic acid, the chlorides, nitrates, sulphates, and organic matters, act rapidly on lead. Some of these agents coat the pipe with compounds insoluble in water, which may be worn away by the friction of the current, and slowly poison by its cumulative action those who may drink the water. People are not susceptible alike to the influence of lead. So small a quantity as the hundredth of a grain to a gallon has been known to cause paralysis, showing the subtle and dangerous character of the poison.

Lead can be used for short service-pipes with comparative safety, if the water is allowed to run freely before using, and for shallow wells, if the pump is vigorously used to wash out the water that has stood for a time in the pipe. It is better, however, to dispense with its use entirely, and substitute iron, which is never harmful, and only objectionable on account of its tendency to oxidation, which may be overcome for a long time by dipping the pipes, while hot, in a bath of coal-tar and coal-rosin.

It has been proposed to coat the interior of lead pipe with block tin, a soft metal. Experience has not proved its practical utility.

The use of earthen, glazed stone-ware pipe for aqueducts, laid with cement joints, is an excellent method to preserve the purity of the water. It is clean, durable, and, in many localities, as good as iron.

Water may be purified, when necessary, by distillation, boiling, aeration, filtration, and by the addition of chemical agents that are harmless, like alum, lime-water, charcoal, and weak vegetable infusions that hold tannin in solution.

Boiling expels the air, carbonic acid, carbonate of lime, a part of the iron, and acids, and kills the microscopic infusoria, bacteria, vibrios, and plant-life, that abound in most natural waters. Household purification is best effected by the simplest methods, such as boiling, and filtration through sponge, cotton-flannel, and tap-filters filled with quartz-sand and animal charcoal.

There are many devices invented that are excellent filters; but the best method is to secure water that needs no purification, if possible.

Water in the form of ice is both a luxury and a necessity with most families, — a luxury in the hot months by cooling our beverages; a necessity to preserve sweet and wholesome our perishable articles of food, and to assist the sick.

Many people believe that ice is always pure; that, in freezing, water is cleared of its impurities: which is partly true, as ice is always more pure than the water from which it forms. But there have been repeated outbreaks of sickness caused by ice taken from the surface of stagnant ponds containing large quantities of decomposing organic deposit: therefore we should be careful to secure our ice-crop from only pure sources.

An account of the outbreak of sickness in the summer of 1875, at Rye Beach, caused by impure ice, as given by Dr. A. H. Nichols in the Seventh Report of the Massachusetts Board of Health, is worthy of attentive, careful perusal.

We can ask the chemist to ascertain, by the manipulations and tests of his wonderful art, the nature and degree of impurity present in water. He will find the inorganic matters held in solution, or suspension, and determine with considerable certainty the organic impurities, as indicated by the nitrogen, ammonia, and albuminoid ammonia; but that indefinable unknown entity, miasm, or germ, which often pollutes water, to spread disease and death among those who drink it, eludes his search, and defies his re-agents, so that he cannot detect with positive certainty, in many instances, a dangerous pollution of water.

John Wesley remarked, "Cleanliness is second only to godliness;" and Mohammed, that "the practice of religion is founded on cleanliness, which is one-half the faith, and the key of prayer."

To these wise sayings let us add the aphorism of Hippocrates, the father of medicine: "Pure air, pure water, and a clean soil."

Cleanliness of the soil claims attention as one of the important sanitary essentials of the home and farm.

How to dispose of household waste, dirty slops and sink-water, human and animal excrement, so as to prevent a nuisance and preserve air and water supply from pollution, is a problem that has taxed the wisdom of wise men since the days of Moses.

Our fathers built their houses convenient to the highway, over cellars dug deep in the earth, drained of surplus water by a stone culvert passing out of one corner to a low spot outside, affording a convenient sally-port for rats and cats, muskrats and polecats.

In this cellar, the root-crops, apples, cider, and household supplies were stored in the autumn, each giving off its own peculiar odor, increasing in pungency with advancing decomposition as spring approached.

In the centre was built the huge chimney, large enough to afford a fireplace of ample dimensions in the rooms above. The only means of ventilation was by opening the cellar-door, and, upward through floors and partitions to the open air, through fireplaces and chimney.

A pipe conveyed the dirty sink-water just outside the walls of the house, to be absorbed by the earth, or diffused over its surface. Near by was the well, ten, twenty, or thirty feet deep, fed by draining water from the adjacent earth.

Not far from house and well, an independent building of small dimensions, plain in architectural design, was erected, or else a peculiarly ornamental annex was built out from the wood-house, for a privy.

The deposits, being received into a shallow pit, were allowed to spread over the surface of the ground, diluted with every rain; or perhaps once a year the putrefying mass was carted off for fertilizing-purposes. Near by was placed the pig-pen, the yard of which was another pit (perhaps one or two feet deep) filled with semi-fluid filth emitting odors most disagreeable and indescribable.

The barn was often built on higher ground than the house. The cattle-yard, or barn-yard, received the chief solid and liquid excrements of the cattle. Its surface was concave, so that after a rain its lowest or deepest part was a filthy, dirty pool, foul smelling, covered, under solar influence, with green slime. Sometimes the water was conveyed by a shallow ditch to the surface of an adjoining field, to infiltrate the soil in all directions with its filth. Such insanitary conditions may be found too frequently in every town and village. Therefore, if what has been said is correct, concerning the purity of the air about and under our dwellings, and the purity of the ground-water when used for drinking-purposes, such accumulation of filthy materials in the soil must contaminate both air and water, and injuriously affect the health of our people. And it is an important "sanitary essential of the home and farm," that the soil in the vicinity of a home should be kept clean, and free from filth-pollution of every kind.

We cannot explain the immunity from disease that has often been observed in families living in such surroundings as have been described, except that Nature, by her chemical processes, is constantly converting noxious elements into new, harmless combinations, and, by solar influence and plant-growth, so relieving the soil of impurities as to prevent that degree of concentration of poisonous elements which would breed disease and death (diffusing, and so diluting, by atmospheric currents, the noisome, sickening, gaseous exhalations of a filth-sodden, filth-polluted, fermenting soil, as to destroy their power to injure); or else the wonderful power of tolerance, resistance, and accommodation, when brought gradually under the influence of morbific agencies possessed by the nerves, fluids, and tissues of our bodily organization, protects the health and life. Fortunately, these dirty, filthy conditions do not directly produce deadly epidemic or infectious diseases: they furnish the nidor, — the material for the multiplication and diffusion of that miasm or germ, that unknown morbific agent specific in nature and power, coming through the medium of air and water, and of unknown origin, which must be added to cause "the pestilence that walketh in darkness, and the destruction that wasteth at noonday."

The perfect house will not be built until the perfect architect, carpenter, mason, and plumber, work together in its construction. Wall-paper, carpets, and upholstered furniture will be condemned by the best maxims of sanitary science.

No house is complete in essential comforts, and arrangements for personal cleanliness, without a bath-room, supplied with hot and cold water, a bath-tub, wash-basin, and water-closet. These should be of the simplest possible construction, avoiding all complicated patent contrivances, connected with a thoroughly trapped and ventilated iron soil-pipe, well and securely placed, which may receive the sink-water, and discharge outside of the house into a well-ventilated stone-ware sewer-pipe, to be conveyed to the place for its final disposal.

That all excreta and kitchen-water should be promptly removed from the vicinity of the house in such a manner as to prevent contamination of earth, air, and water, is apparent to every one.

How this can best be accomplished without creating a dangerous nuisance depends on such varied local considerations, that it is evident that no one method can be applied to all places.

The safest and most efficient system is that of water-carriage, when carefully arranged and thoroughly constructed, discharging through impervious pipes into a well-built public sewer.

In rural neighborhoods, and for isolated houses, this is impossible; and some other means for the disposal of the sewage must be devised. Some resort to the dangerous cesspool, or filth-storehouse: others pour it into the nearest brook or water course, or else allow it to flow over the surface of a side-hill at some distance from the house. All these methods are disagreeable, objectionable, and often dangerous.

The most perfect device yet invented is that of intermittent subsoil filtration with Field's Patent Flush Tank, as improved by Col. E. G. Waring, jun., of Newport, a distinguished sanitary engineer, and described in his work on the "Sanitary Drainage of Houses and Towns," and applied by him to dispose of the sewage of the town of Lenox, that of the prison for women at Sherborn, and that of many private houses.

Another excellent method of disposing of the excreta is by the liberal use of dry earth, and its frequent removal. The modern earth-closet, the invention of the Rev. William Moule, is one form of this system.

The sanitary essentials discussed in this essay apply to both barn and house. No farmer can neglect them, and secure the highest attainable degree of health and comfort to, and profit from, his stock.

Pure air, pure water, cleanliness, with good food and gentle, kind care, are essential to the success of the dairy farmer who would secure the largest possible product of rich, sweet milk for butter and cheese, or supply his patrons in town and city acceptably with this choicest, richest, most important, and valuable of all natural foods, and the most sensitive also.

Many diseases of cattle, sheep, swine, and horses are greatly aggravated, if not directly caused, by bad sanitary surroundings and conditions.

A teamster at Miller's Falls lost several horses by disease. He asked his physician what he thought was the cause. The young man examined his stable, and advised him "to break the door all to pieces," as that was the cause of the sickness, by keeping out fresh air. The man lost no more horses.

A farmer lost yearly one or more fine shotes, kept in a certain close, damp, dark pen; while in another pen, open to fresh air and sunlight, a hog was never known to be sick. A *post-mortem* examination showed that these hogs died of consumption, caused by breathing damp, impure, stagnant air, and by the absence of sunlight: the conditions were changed, and no more hogs died, showing that even a hog cannot bear every unhealthy influence, added to the filth in which he will wallow in hot weather to cool himself.

Rossignol, a French writer, states "that previous to 1836 the mortality of French cavalry horses varied from a hundred and eighty to a hundred and ninety-seven per thousand per annum. They enlarged the stables, and increased the quantity of the ration of air, and reduced the loss in the next ten years to sixty-eight per thousand per annum."

In the Italian war of 1859, M. Moulin, chief veterinary surgeon, kept ten thousand horses many months in barracks open to the external air, in place of closed stables. Scarcely any horses were sick, and only one case of glanders occurred.

Wilkinson, an English writer, says, "that the annual mortality of cavalry horses, formerly very great, is now reduced to twenty per thousand, of which one-half is from accidents and incurable diseases. Glanders and farcy have almost disappeared; and, if a case occurs, it is considered evidence of neglect.

Our subject embraces a wide range of investigation concerning matters fundamental to the health, comfort, and happiness of our people and our domestic animals. As we study, understand, and appreciate the conditions that environ us in nature, the harmonious operations of those forces and agencies, acting upon and within us, which make the mystery of life possible, and which, if not understood and controlled, bring suffering, disease, and death, we are engaged in a work that has taxed the energies and brains of many of the wisest and best men that have ever lived on the earth. Although much is known, yet that silent, unseen force, that evolves the phenomena of life, eludes the search of the wisest philosopher. The secret of life has never been discovered or revealed.

The microscope shows its wonderful work in cell and protoplasm, and human power can go no farther.

If the statements and suggestions of this essay have the approval of your intelligent judgment, stimulating your thought, and prompting you to protect your homes more carefully from morbific influences, and secure for yourselves, your families, and domestic animals, the pure air, pure water, and cleanliness that God has blessed, for the preservation of health and life, then this passing hour will be remembered with pleasure, in which we considered some of the sanitary essentials of the home and farm.

At the close of the reading, Mr. Wilder led in an interesting discussion of the subject presented. The thanks of the Board were unanimously voted to Dr. Lynde.

On the motion of Mr. Wilder, the Board discussed the recommendation of the Governor in regard to the establishment of scholarships at the Agricultural College by the county societies: the matter was laid on the table.

Professor GOESSMANN presented his Ninth Annual Report on Commercial Fertilizers.

NINTH ANNUAL REPORT ON COMMERCIAL FERTILIZERS.

BY PROFESSOR C. A. GOESSMANN.

The consumption of commercial fertilizers is still increasing from year to year throughout the entire country. The tendency of a gradual but steady rise in the cost of various kinds of crude stock used for their manufacture (referred to in my last annual report, 1880–1881) has been a noticeable feature in the history of the trade in fertilizers during the past year. The prices of the potassa, and of the nitrogen in particular, have been higher than in previous years; whilst those of the different forms of phosphoric acid have remained, as a general rule, more stationary. The higher grades of potassium chloride (muriate of potash) have brought a higher price; whilst the kainits, and the higher grades of potassium sulphate, have been sold at previous rates, or for less. A continuation of this condition may have its effect, in the future, on the composition of the compound fertilizers, to meet their customary retail market-prices, per ton, by lowering their nitrogen percentage, and increasing that of phosphoric acid. The lately reduced importation of genuine Peruvian guano, as well as the smaller supply of Menhaden fish refuse, has no doubt exerted a serious influence on the entire trade, and may, in part at least, account for the increased cost of all our ammoniated superphosphates. I have taken particular pains to obtain at various times during the past year, until quite recently, reliable market reports from Boston and New York. A digested abstract of the information obtained in this connection will be found within the subsequent pages, under the heading, "New-York and Boston Market-Prices for 1881." The figures given in that price-list refer, in either case, to the cost of the articles delivered at the respective local railroad depot, in case of cash payments. As the cost of distribution, including the customary credit of from three to six months, must vary more or less in each case, it has, for obvious reasons, been left to the good judgment of the consumer to decide whether, in his own locality, the price asked for the fertilizer he bought is a fair one. According to the best information obtained, it seems quite admissible, to expect in the retail trade, in the majority of instances, an advance of from twenty to twenty-five per cent above first cost at the works.

The valuation which accompanies, in many instances, the analysis of the fertilizer, does not necessarily coincide with that of the manufacturer, but simply approximates the price at which the various constituents named in the analysis were offered for sale in a good form in the general market at the time of collection.

During the past year, and for the earlier period of the coming season, the following prices may be considered a fair basis for the valuation of the essential constituents of fertilizers (only *specified* forms of the *guaranteed composition* have received a particular consideration in the valuation); and, in case of inferior mechanical condition of the fertilizers, the customary lower rates have been adopted.

	Price per pound, in cents.
Nitrogen in form of nitric acid	25
Nitrogen in form of actual ammonia	26
Nitrogen in form of animal matter	24
Soluble phosphoric acid	12.5
Reverted phosphoric acid	9
Insoluble phosphoric acid	6
Potassium oxide in muriate of potash	5
Potassium oxide in kainit	5
Potassium oxide in high grades of sulphate of potassa	7

It is well for farmers to consider that the manufacturers are only obliged to furnish the lowest percentage guaranteed in their statements of composition, and that the insoluble phosphoric acid in many of our ammoniated superphosphates consists of fine-ground mineral phosphates, which are less efficient, and consequently of less worth, than that in form of bones and of animal and vegetable matter.

New-York and Boston Market-Prices for the Year 1881 *(March).*

I.

	Price per pound, in cents.
I. *Nitrogen.* In form of nitric acid	25
In form of ammonia	26
In form of dried ground meat and blood, finely-pulverized steamed bones, finely-ground fish-guano, Peruvian guano, urates, poudrettes, and artificial guano	24

	Price per pound, in cents.
Nitrogen. In form of finely-ground bones, and bat-guano	22
In form of fine-ground horn, wool-dust, etc.	15
In form of coarsely-ground bones	18
In form of horn-shavings and woollen rags, human excretions and barnyard-manure, fish-scraps, animal refuse-matter from glue factories and tanneries, etc.	12
II. *Phosphoric Acid soluble in water.* As contained in alkaline phosphates and superphosphates	12.5
In Peruvian guano and urates	9
In form of so-called reduced or reverted acid	9
In precipitated bone-phosphate, steamed fine bones, fish-guano, according to size and disintegration, from	6 to 8
In form of bone-black waste, wood-ash, Caribbean guano, ground-bone ash, coarsely-ground bones, poudrette, barnyard-manure, etc.	4
In form of finely-ground South-Carolina and Nevassa phosphates	3
III. *Potassium Oxide.* In form of muriate of potash or chloride of potassium	5
In form of sulphate of potassa in natural and artificial kainits	5
In form of higher grades of sulphate of potassa	7 to 7.5

II.

NAME OF MATERIAL.	Price per ton of 2,000 pounds, in dollars.	Price per pound in case of from 100 to 200 pounds, in cents.
Sulphate of Ammonia, containing from 24 to 25 per cent of ammonia	95-105	4.75-5.5
Nitrate of Soda (Chili saltpetre), containing 95 per cent of that compound	75-80	3.75-4.5
Nitrate of Potassa, containing 94 to 96 per cent of that compound	165-170	9-9.5
Dried Blood, yielding from: —		
(*a*) 15 to 17 per cent of ammonia (black),	65-75	3.5-4
(*b*) 12 to 14 per cent of ammonia (soft red),	55-60	2.75-3.25
(*c*) 10 to 12 per cent of ammonia	45-50	2.25-2.75
Dried Meat, yielding from 14 to 15 per cent of ammonia	50-55	3
Castor Pomace (ground), yielding 5 to 6 per cent of ammonia	25-30	1.5-2
Cotton-seed Meal, yielding from 7 to 8 per cent of ammonia	33-35	1.75-2.25
Fine-ground Bones (steamed), yielding from 3.5 to 4.5 per cent of ammonia, and containing from 50 to 55 per cent of bone-phosphate	38-45	2-2.5

NAME OF MATERIAL.	Price per ton of 2,000 pounds, in dollars.	Price per pound in case of from 100 to 200 pounds, in cents.
Bone-black (waste material), containing from 30 to 34 per cent of phosphoric acid	30–35	1.75-2
South-Carolina Phosphate (ground), containing from 25 to 28 per cent of phosphoric acid	20–25	1.25-1.5
Navassa Phosphate (ground), containing from 25 to 28 per cent of phosphoric acid	20–25	1.25-1.5
Canadian Apatite (ground), containing from 30 to 35 per cent of phosphoric acid	30–35	1.5-2
No. 2 Superphosphate of Lime, containing from 15 to 16 per cent of soluble phosphoric acid	30–35	1.5-2
Acid Phosphate, containing from 12 to 14 per cent of soluble phosphoric acid	25–30	1.5-1.75
Lobos Guano, yielding from 4 to 6 per cent of ammonia, and containing from 18 to 20 per cent of phosphoric acid	55–60	3-3.5
Peruvian Guano (guaranteed), yielding from 6 to 8 per cent of ammonia, and containing from 12 to 14 per cent of phosphoric acid,	60–65	3.25-3.5
Muriate of Potash, containing from 80 to 85 per cent of that compound, equal to from 50 to 53.7 per cent of potassium oxide	42–45	3
Muriate of Potash (Douglasshall), containing 80 per cent of that compound, equal to 50 per cent of potassium oxide and about 10 per cent of sulphate of magnesia	45–50	2.5
Sulphate of Potassa, containing 80 per cent of that compound, which is equal to 43.3 per cent of potassium oxide	65	4
Sulphate of Potassa, containing from 60 to 65 per cent of that compound, which is equal to from 32.3 to 35 per cent of potassium oxide	55-60	3.5
German Potash-Salt, containing from 28 to 32 per cent of sulphate of potassa, which is equal to from 15 to 17.3 per cent of potassium oxide	18–20	1.25
Kainit (low grade), containing 22 to 26 per cent of sulphate of potassa, which is equal to from 11.9 to 14 per cent of potassium oxide	12–15	.75-1
Sulphate of Magnesia (Kieserite), containing from 60 to 70 per cent of that compound,	20–25	1.25-1.5
Sulphate of Magnesia, containing from 50 to 55 per cent of that compound	14–15	.8
Fine-ground Gypsum, containing from 95 to 98 per cent of that compound	9–10	.5

POTASH COMPOUNDS.

Muriate of Potash.

I.

(Collected of Messrs. Bagg & Batchelder, Springfield, Mass.)

	Per cent.
Moisture	2.00
Potassium oxide	50.40
Sodium oxide	4.99
Magnesium oxide	None.
Sulphuric acid	Trace.
Calcium oxide	None.
Sand, etc.	.40

II.

(Collected of Bowker Fertilizer Co., Boston, Mass.)

	Per cent.
Moisture	2.70
Insoluble matter, water	.40
Chlorides of alkalies	92.70
Potassium oxide	47.48
Calcium oxide	Trace.
Magnesium oxide	Trace.
Sulphuric acid	Trace.

III.

(Collected of Messrs. Brown & Warner, Northampton, Mass.)

	Per cent.
Moisture	2.00
Potassium oxide	50.54
Calcium and sulphuric acid	Traces.

IV.

(Sent on for examination.)

	Per cent.
Water	.80
Potassium oxide	49.83
Chloride of magnesium	Trace.
Sulphate of magnesium	Trace.

These four samples represent fairly the average quality, in our markets, of this valuable potash compound. The well-known reliability of this brand, aside from its comparative fair price, has caused its extensive application, and late rise from thirty-five to forty-five dollars per ton.

Potash-Magnesium Sulphate.

I.

(Collected of Bowker Fertilizer Co., Boston, Mass.)

	Per cent.
Moisture at 100° C.	2.70
Magnesium sulphate	32.76
Calcium sulphate	2.00
Potassium sulphate	45.50
Chlorine	None.
Insoluble matter	.60

II.

(Collected of Messrs. Brown & Warner, Northampton, Mass.)

	Per cent.
Moisture at 100° C.	5.75
Magnesium sulphate	37.02
Potassium sulphate	44.27
Sulphuric acid	46.99
Insoluble matter	.56

These two samples represent a brand of "German potash-salts" which is highly recommended for deep-rooting plants, as clover, beet-roots, etc., on account of the exceptional rapid diffusion of its potassa throughout the soil, in consequence of the presence of magnesium sulphate. The absence of chlorides renders it also the safer article for various special industrial crops, as tobacco, sugar-beet, and potatoes.

Ashes from Blue-Works.

(Sent by H. E. B. Waldron, New Bedford, Mass.)

	Per cent.
Moisture lost at 100° C.	12.74
Organic and volatile matter	36.22
Ash constituents	63.78
Insoluble matter	12.30
Potassium oxide (sulphate)	9.02
Cyan compounds	Traces.

The commercial value of this refuse article consists in its potassium oxide, which is present mainly in the form of sulphate. The peculiar origin of this material advises some precaution in regard to its use in a fresh state, as it may contain still some cyan and sulpho-cyan compounds which are known to be injurious to plant-growth. The moist crude material should be exposed to the air for some time in a similar way, and for similar reasons, as the fresh refuse lime of gas-houses before applied. It would be of interest to learn the specific action of a well-aired article on pear-trees, on account of the large amount of oxide of iron it contains.

Logwood-Ashes (Boston Dye-Works).

(Collected of Messrs. Horton & Phelps, Northampton, Mass.)

	Per cent.
Moisture	1.50
Volatile matter	3.90
Total phosphoric acid	2.30
Calcium oxide	53.28
Magnesium oxide	Trace.
Potassium oxide	.08
Insoluble matter	9.70

The value of this recently introduced ash rests on its phosphoric acid, and its high percentage of lime. The wood which furnishes this ash had lost its potash by a previous abstraction of its coloring-matter.

Magnesium Sulphate.

I.

(Bowker Fertilizer Co., Boston, Mass.; collected of Massachusetts Agricultural College.)

	Per cent.
Moisture	23.70
Magnesium oxide	18.20
Calcium oxide	2.30
Sulphuric acid	37.22
Insoluble matter	7.55

II.

(Sent on for examination.)

	Per cent.
Water	7.50
Sulphuric acid	41.85
Magnesium oxide	18.26
Calcium oxide	2.18
Insoluble matter	.40

The superior fitness of this compound for the absorption of ammonia in place of gypsum has not yet received that attention which it deserves. Its action on stem and leaf growth in case of forage crops, as clover, also calls for home experiments in that direction.

Gypseous Shale (Port Byron, N.Y.).

(From Mr. Ellis, Amherst, Mass.)

	Per cent.
Calcium carbonate	11.05
Magnesium carbonate	2.65
Calcium sulphate	38.55
Iron and alumina	.60
Insoluble matter	37.15

This material has been sent on for examination, to ascertain its commercial value in our market. As its value depends largely on the gypsum present, it will be seen that the cost of transportation interferes with its sale at remunerative prices within our State.

Onondaga Plaster.

I.

(Collected of Messrs. Sheldon & Newcombe, Greenfield, Mass.)

	Per cent.
Moisture at 100° C.	12.65
Calcium oxide	30.20
Magnesium oxide	5.04
Iron and alumina oxides	1.60
Carbonic acid	8.60
Sulphuric acid	33.95
Insoluble matter	5.80

II.

(Collected of W. H. Earle, Worcester, Mass.)

	Per cent.
Moisture at 100° C.	14.35
Calcium oxide	31.46
Magnesium oxide	3.93
Iron and alumina oxides	1.30
Sulphuric acid	36.00
Carbonic acid	8.21
Insoluble matter	4.79

The Onondaga plaster has been sold (at six dollars per ton), during the past year, quite generally throughout the western and central parts of the State. It contains from sixty to sixty-two per cent of sulphate of lime, — about two-thirds of the amount in a good Nova-Scotia article, which supplied our entire want in previous years.

Marl.

(Sent by Hon. Elizar Smith, Lexington, Mass.)

	Per cent.
Moisture at 100° C.	55.80
Dry matter at 100° - 110° C.	44.20
Organic matter	3.44
Carbonate of lime	37.00
Carbonate of magnesia	.57
Oxides of iron and alumina, with traces of phosphoric acid	.70
Insoluble matter	2.49
Phosphoric acid and nitrogen	Traces.

This marl is noticeable on account of its deficiency in phosphoric acid and in magnesia compounds. Its superior mechanical condition renders it a valuable material wherever application of carbonate of lime is advisable.

Orchilla Guano

(From Messrs. Horton & Phelps, Northampton, Mass.)

	Per cent.
Moisture	11.20
Organic and and volatile matter	–
Total phosphoric acid	18.11
Total calcium oxide	39.53
Insoluble matter	2.40
Magnesium oxide	Trace.

This sample, like those described in previous reports, represented in its natural condition a fine, pulverized material, which contained from thirty-nine to forty per cent of bone-phosphate. Its fitness for the incorporation in barnyard-manure, and direct application upon turfy lands, has been repeatedly pointed out.

Nitrate of Potassa.

(From Bowker Fertilizer Co., Boston, Mass.)

	Per cent.
Moisture	1.75
Potassium oxide	45.62
Calcium oxide and sulphuric acid	Traces.
Insoluble matter	Trace.

The above sample represents a good standard article of its kind, containing from ninety-five to ninety-six per cent of nitrate of potassa. The price of this chemical, which is from a hundred and sixty-five to a hundred and seventy dollars per ton, is too high to recommend it for general farm purposes. For experimental purposes in fruit-culture, as a source of potassa and nitrogen, it deserves a careful consideration.

Sulphate of Ammonia.

(From Horton & Phelps, Northampton, Mass.)

	Per cent.
Moisture	1.50
Ammonia	27.00
Sulphuric acid	70.70
Insoluble matter	None.

This sample is of a good quality. The supply of sulphate of ammonia has been less in our market during the past year than in previous years. The price, which was formerly ninety dollars, has risen to a hundred and five dollars. It will be advisable for farmers to abstain from buying low grades — dark-colored articles — for experimental purposes on account of their doubtful character.

Wool-Waste (saturated with oil).

	Per cent.
Moisture at 105° C.	8.43
Nitrogen	6.25

Value equal to from sixteen to eighteen dollars per ton.

BONE FERTILIZERS.

I.

Ground Bones.

(Bowker Fertilizer Co.; collected of Mr. Minott, Westminster, Mass.)

	Per cent.
Moisture at 100°-110° C.	7.20
Organic and volatile matter	37.40
Ash constituents	62.60
Total phosphoric acid	26.17
Total nitrogen	4.01
Sand, etc.	.04

II.

Fine-ground rendered Bones.

(Edmund Hersey, Esq., Hingham, Mass.)

	Per cent.
Moisture 100° C.	4.00
Organic and volatile matter	26.40
Ash constituents	73.60
Total phosphoric acid	28.50
Nitrogen	2.60

III.

Darling's Fine Bones.

(Collected of Messrs. Parker & Gannet, Boston, Mass.)

	Per cent.
Moisture at 100°–110° C.	7.96
Organic and volatile matter	42.81
Ash constituents	57.19
Total phosphoric acid	23.09
Nitrogen	4.29
Insoluble matter	1.25

IV.

Pure Ground Bones of A. L. Amos.

(Sent by Mr. Preston.)

	Per cent.
Moisture at 100° C.	9.25
Organic and volatile matter	46.25
Ash constituents	53.75
Total phosphoric acid	20.61
Nitrogen	3.79
Insoluble matter	6.00

V.

C. W. Belknap & Low, Portland, Me.

(Collected of Rice Brothers, Worcester, Mass.)

	Per cent.
Moisture	8.070
Organic and volatile matter	46.950
Ash constituents	53.050
Total phosphoric acid	21.300
Nitrogen	4.698
Insoluble matter	.210

ANIMAL MATTER.

(Sent by Hon. J. B. Moore, Concord, Mass.)

I.

	Per cent.
Moisture lost at 100° C.	8.76
Organic and volatile matter	42.28
Ash constituents	57.72
Total phosphoric acid	21.62
Total nitrogen	3.61
Insoluble matter, sand, etc.	.54

Valuation per ton of two thousand pounds: —

432.4 pounds of phosphoric acid	$25 94
72.2 pounds of nitrogen	17 33
	$43 27

II.

	Per cent.
Moisture lost at 100° C.	17.36
Organic and volatile matter	53.02
Ash constituents	46.98
Total phosphoric acid	11.50
Total nitrogen	1.74
Insoluble matter	7.30

Valuation per ton of two thousand pounds: —

230 pounds of phosphoric acid	$13 80
34.8 pounds of nitrogen	8 35
	$22 15

Darling's Lawn-Dressing.

(Collected by Messrs. Parker & Gannet, Springfield, Mass.)

	Per cent.
Moisture	9.58
Organic and volatile matter	41.39
Ash constituents	58.61
Nitrogen	3.15
Total phosphoric acid	14.62
Potassium oxide	7.02
Soluble phosphoric acid	1.39
Reverted phosphoric acid	4.16
Insoluble phosphoric acid	9.07
Insoluble matter	1.00

Valuation per ton of two thousand pounds: —

27.8 pounds of soluble phosphoric acid	$3 47
83.2 pounds of reverted phosphoric acid	7 49
181.4 pounds of insoluble phosphoric acid	10 88
63 pounds of nitrogen	15 12
140.4 pounds of potassium oxide	7 02
	$43 98

Riverside Superphosphate.

(J. O. Whitten, Cambridge, Mass.; collected of George Upton, Esq., Boston, Mass.)

	Per cent.
Moisture at 100°-105° C.	6.70
Organic and volatile matter	49.30
Ash constituents	50.70
Total phosphoric acid	18 13

	Per cent.
Soluble phosphoric acid	1 50
Reverted phosphoric acid	4.13
Insoluble phosphoric acid	12.60
Nitrogen	3.60
Insoluble matter	1.40

Valuation per ton of two thousand pounds: —

30	pounds of soluble phosphoric acid	$3 75
82.6	pounds of reverted phosphoric acid	7 43
252	pounds of insoluble phosphoric acid	15 12
72	pounds of nitrogen	17 28
		$43 58

Animal Fertilizer.

(Messrs. Whittemore Brothers, Wayland, Mass.; sent on for examination.)

	Per cent.
Moisture at 100° C.	6.50
Organic and volatile matter	32.96
Ash constituents	67.04
Total phosphoric acid	12.65
Soluble phosphoric acid	1.25
Reverted phosphoric acid	2.77
Insoluble phosphoric acid	8.63
Nitrogen	2.73
Potassium oxide	7.24
Insoluble matter	5.86

Valuation per ton of two thousand pounds: —

25	pounds of soluble phosphoric acid	$3 12
55.4	pounds of reverted phosphoric acid	4 99
172.6	pounds of insoluble phosphoric acid	10 36
54.6	pounds of nitrogen	13 10
144.8	pounds of potassium oxide	7 24
		$38 81

Bowker's Animal Fertilizer.

(Collected of Mr. William H. Earle, Worcester, Mass.)

	Per cent.
Moisture	10.33
Organic and volatile matter	49.93
Ash constituents	50.07
Total phosphoric acid	11.99
Soluble phosphoric acid	4.78
Insoluble phosphoric acid	2.18
Reverted phosphoric acid	5.03
Nitrogen	3.79
Potassium oxide	4.84
Insoluble matter	5.57

Valuation per ton of two thousand pounds: —

95.6 pounds of soluble phosphoric acid	$11 95
100.6 pounds of reverted phosphoric acid	9 05
43.6 pounds of insoluble phosphoric acid	2 62
75.8 pounds of nitrogen	18 19
96.8 pounds of potassium oxide	4 84
	$46 65

DRIED GROUND FISH.

(Preston Fertilizer Co.; collected of Messrs. Spaulding & Co., Northampton, Mass.)

I.

	Per cent.
Moisture	27.20
Organic and volatile matter	64.65
Ash constituents	35.35
Total phosphoric acid	8.32
Nitrogen	4.22
Potassium oxide	.80
Insoluble matter	1.74

Valuation per ton of two thousand pounds: —

16 pounds of potassium oxide	$0 80
166.4 pounds of phosphoric acid	9 98
84.4 pounds of nitrogen	20 26
	$31 04

II.

Dried Fish.

	Per cent.
Moisture at 100° C.	19.34
Organic and volatile matter	62.99
Ash constituents	37.01
Total phosphoric acid	8.90
Nitrogen	5.86
Potassium oxide	.45
Insoluble matter	3.76

Valuation per ton of two thousand pounds: —

9 pounds of potassium oxide	$0 45
178 pounds of phosphoric acid	10 68
117.2 pounds of nitrogen	28 13
	$39 26

Bowker's Dry Ground Fish.

(Collected of Brown & Warner, Northampton, Mass.)

	Per cent.
Moisture	9.00
Organic and volatile matter	71.92
Ash constituents	28.08
Total phosphoric acid	9.60
Nitrogen	5.98

Valuation per ton of two thousand pounds: —

192 pounds of phosphoric acid	$11 52
119.6 pounds of nitrogen	28 70
	$40 22

Bowker's Dry Fish and Potash.

(Collected of Messrs. Brown & Warner, Northampton, Mass.)

	Per cent.
Moisture	12.60
Total phosphoric acid	10.50
Nitrogen	2.68
Potassium oxide	4.10
Insoluble matter	3.60

Valuation per ton of two thousand pounds: —

210 pounds of phosphoric acid	$12 60
53.6 pounds of nitrogen	12 86
82 pounds of potassium oxide	4 10
	$29 56

Peruvian Guano.

(Sent by H. M. Peirson, Esq., Pittsfield, Mass.)

	Per cent.
Moisture lost at 100° C.	11.22
Organic and volatile matter	48.26
Ash constituents	51.74
Total phosphoric acid	16.70
Soluble phosphoric acid	8.80
Reverted phosphoric acid	2.78
Insoluble phosphoric acid	5.12
Potassium oxide	3.74
Nitrogen	6.80
Insoluble matter	6.62

Valuation per ton of two thousand pounds: —

176 pounds of soluble phosphoric acid	$22 00
55.6 pounds of reverted phosphoric acid	4 95
102.4 pounds of insoluble phosphoric acid	6 14
136 pounds of nitrogen	32 64
74.8 pounds of potassium oxide	3 74
	$69 57

Warranted Peruvian Guano.

(Hobson, Hutardo, & Co.; collected of Messrs. Rice Brothers, Worcester, Mass.)

	Per cent.
Moisture	14.72
Organic and volatile matter	52.16
Ash constituents	47.87
Total phosphoric acid	14.94
Soluble phosphoric acid	6.04
Reverted phosphoric acid	1.98
Insoluble phosphoric acid	6.92
Nitrogen	7.75
Potassium oxide	3.85
Insoluble matter	7.99

Valuation per ton of two thousand pounds: —

120.8	pounds of soluble phosphoric acid	$15 08
39.6	pounds of reverted phosphoric acid	3 56
138.4	pounds of insoluble phosphoric acid	8 30
155	pounds of nitrogen	37 20
77	pounds of potassium oxide	3 85
		$67 99

Guaranteed Peruvian Guano.

(Collected of Messrs. Horton & Phelps, Northampton, Mass.)

	Per cent
Moisture	7.02
Organic and volatile matter	38.35
Ash constituents	61.65
Total phosphoric acid	23.10
Soluble phosphoric acid	3 30
Reverted phosphoric acid	3.30
Insoluble phosphoric acid	16.50
Nitrogen	6.57
Potassium oxide	2.90
Insoluble matter	7.60

Valuation per ton of two thousand pounds: —

66	pounds of soluble phosphoric acid	$8 25
66	pounds of reverted phosphoric acid	5 94
330	pounds of insoluble phosphoric acid	19 80
131.4	pounds of nitrogen	31 54
58	pounds of potassium oxide	2 90
		$68 43

Guaranteed Peruvian Guano.

(Collected of Messrs. Bagg & Batchelder, Springfield, Mass.)

	Per cent.
Moisture	15.500
Organic and volatile matter	51.850
Ash constituents	48.150

	Per cent.
Total phosphoric acid	13.500
Soluble phosphoric acid	4.030
Reverted phosphoric acid	1.380
Insoluble phosphoric acid	8.090
Nitrogen	7.082
Potassium oxide	2.470
Insoluble matter	10.700

Valuation per ton of two thousand pounds: —

80.6 pounds of soluble phosphoric acid	$10 08
27.6 pounds of reverted phosphoric acid	2 48
161.8 pounds of insoluble phosphoric acid	9 71
141.6 pounds of nitrogen	33 98
49.4 pounds of potassium oxide	2 47
	$58 32

AMMONIATED SUPERPHOSPHATES.

Soluble Pacific Guano.

(Collected of Charles E. Wilder, Worcester, Mass.)

	Per cent.
Moisture at 100° C.	14.27
Organic and volatile matter	50.42
Ash constituents	49.58
Total phosphoric acid	11.69
Soluble phosphoric acid	7.42
Reverted phosphoric acid	.69
Insoluble phosphoric acid	3.80
Nitrogen	3.08
Potassium oxide	2.50
Insoluble matter	5.55

Valuation per ton of two thousand pounds: —

148.4 pounds of soluble phosphoric acid	$18 55
13.8 pounds of reverted phosphoric acid	1 24
76 pounds of insoluble phosphoric acid	4 56
61.6 pounds of nitrogen	14 78
50 pounds of potassium oxide	2 50
	$11 63

Standard Superphosphate.

(Collected of Whittemore Brothers, Boston, Mass.)

	Per cent.
Moisture 100° - 105° C.	20.91
Volatile and organic matter	45.80
Ash constituents	54.20

	Per cent.
Total phosphoric acid	12.60
Soluble phosphoric acid	1.92
Reverted phosphoric acid	5.94
Insoluble phosphoric acid	4.74
Nitrogen	2.06
Potassium oxide	3.69
Magnesium oxide	1.00
Insoluble matter	4.54

Valuation per ton of two thousand pounds:—

38.4 pounds of soluble phosphoric acid	$4 80
94.8 pounds of insoluble phosphoric acid	5 69
118.8 pounds of reverted phosphoric acid	10 70
41.2 pounds of nitrogen	9 89
73 8 pounds of potassium oxide	3 69
	$34 77

Food for Plants.

(Collected from Thomas Aublu, Boston, Mass.)

	Per cent.
Moisture at 100° C.	3 38
Organic and volatile matter	42.50
Ash constituents	57.50
Total phosphoric acid	12.60
Soluble phosphoric acid	10.60
Reverted phosphoric acid	-
Insoluble phosphoric acid	2.00
Nitrogen	3.89
Potassium oxide	3.86
Insoluble matter	1.38

Valuation per ton of two thousand pounds:—

212 pounds of soluble phosphoric acid	$26 70
40 pounds of insoluble phosphoric acid	2 40
77.8 pounds of nitrogen	18 67
77 2 pounds of potassium oxide	3 86
	$51 63

Stockbridge's Manures; Corn.

(Bowker & Co.; collected by Puffer & Wilder, Springfield, Mass.)

	Per cent.
Moisture	12.89
Organic and volatile matter	59.60
Ash constituents	40.40
Total phosphoric acid	10.30
Soluble phosphoric acid	6.62
Reverted phosphoric acid	1.91

	Per cent.
Insoluble phosphoric acid	1.77
Nitrogen	4.10
Potassium oxide	5.65

Valuation per ton of two thousand pounds: —

132.4 pounds of soluble phosphoric acid	$16 55
38.2 pounds of reverted phosphoric acid	3 44
35.4 pounds of insoluble phosphoric acid	2 12
82 pounds of nitrogen	19 68
113 pounds of potassium oxide	5 65
	$47 44

Pine-Island Guano.

(Collected of Messrs. Horton & Phelps, Northampton, Mass.)

	Per cent.
Moisture	12.72
Organic and volatile matter	39.59
Ash constituents	60.41
Total phosphoric acid	8.50
Soluble phosphoric acid	5.60
Reverted phosphoric acid	1.49
Insoluble phosphoric acid	1.41
Nitrogen	4.32
Potassium oxide	4.15
Insoluble matter	1.23

Valuation per ton of two thousand pounds: —

112 pounds of soluble phosphoric acid	$14 00
29.8 pounds of reverted phosphoric acid	2 68
28.2 pounds of insoluble phosphoric acid	1 69
86.4 pounds of nitrogen	20 74
83 pounds of potassium oxide	4 15
	$43 26

Bradley's XL Superphosphate of Lime.

(Collected of Messrs. George Robinson & Brooks, Palmer, Mass.)

	Per cent.
Moisture	17.10
Organic and volatile matter	57.68
Ash constituents	42.32
Total phosphoric acid	13.32
Soluble phosphoric acid	9.30
Insoluble phosphoric acid	2.00
Nitrogen	2.93
Potassium oxide	1.73
Insoluble matter	3 20

Valuation per ton of two thousand pounds:—

186	pounds of soluble phosphoric acid	$23 25
40	pounds of insoluble phosphoric acid	2 40
58.6	pounds of nitrogen	14 06
34.6	pounds of potassium oxide	1 73
		$41 44

Bradley's Sea-Fowl.

(Collected of Messrs. Sheldon & Newcomb, Greenfield, Mass.)

	Per cent.
Moisture	11.26
Organic and volatile matter	55.95
Ash constituents	44.05
Total phosphoric acid	12.13
Soluble phosphoric acid	8.15
Reverted phosphoric acid	1.22
Insoluble phosphoric acid	2.76
Nitrogen	3.66
Potassium oxide	2.51
Insoluble matter	4.95

Valuation per ton of two thousand pounds:—

163	pounds of soluble phosphoric acid	$20 37
24.4	pounds of reverted phosphoric acid	2 20
55.2	pounds of insoluble phosphoric acid	3 31
73.2	pounds of nitrogen	17 57
50.2	pounds of potassium oxide	2 51
		$45 96

Ammoniated Superphosphate of Lime.

(Preston Fertilizer Co.; collected of Messrs. Spaulding & Co., Northampton, Mass.)

	Per cent.
Moisture	13.30
Organic and volatile matter	41.60
Ash constituents	58.40
Total phosphoric acid	13.02
Soluble phosphoric acid	9.54
Reverted phosphoric acid	1.44
Insoluble phosphoric acid	2.04
Nitrogen	2.38
Insoluble matter	5.40

Valuation per ton of two thousand pounds:—

190.8	pounds of soluble phosphoric acid	$23 85
28.8	pounds of reverted phosphoric acid	2 59
40.8	pounds of insoluble phosphoric acid	2 45
47.6	pounds of nitrogen	11 42
		$40 31

Bone Fertilizer.

(Sent by A. L. Amos, Esq., Peabody, Mass.)

	Per cent.
Moisture at 220° F.	7.31
Organic and volatile matter	60.90
Ash constituents	39.10
Total phosphoric acid	12.99
Soluble phosphoric acid	8.13
Reverted phosphoric acid	1.75
Insoluble phosphoric acid	3.11
Nitrogen	4.64
Insoluble matter	.48

Valuation per ton of two thousand pounds: —

162.6 pounds of soluble phosphoric acid	$20 33
35 pounds of reverted phosphoric acid	3 15
62.2 pounds of insoluble phosphoric acid	3 73
92.8 pounds of nitrogen	22 27
	$49 48

Mitchell's Standard Phosphate.

(Collected of Messrs. Rice Brothers, Worcester, Mass.)

	Per cent.
Moisture	14.99
Organic and volatile matter	53.83
Ash constituents	46.17
Total phosphoric acid	12.42
Soluble phosphoric acid	9.85
Reverted phosphoric acid	–
Insoluble phosphoric acid	2.57
Nitrogen	2.64
Potassium oxide	2.16
Insoluble matter	2.68

Valuation per ton of two thousand pounds: —

197 pounds of soluble phosphoric acid	$24 66
51.4 pounds of insoluble phosphoric acid	3 08
52.8 pounds of nitrogen	12 67
43.2 pounds of potassium oxide	2 16
	$42 57

Bosworth Brothers' Ammoniated Bone Superphosphate.

(Collected of Messrs. Holden & Wilson, Worcester, Mass.)

	Per cent.
Moisture	8.00
Organic and volatile matter	41.71
Ash constituents	58.29

	Per cent.
Total phosphoric acid	14.33
Soluble phosphoric acid	4.44
Reverted phosphoric acid	7.15
Insoluble phosphoric acid	2.74
Nitrogen	2.64
Insoluble matter	1.13

Valuation per ton of two thousand pounds: —

88.8	pounds of soluble phosphoric acid	$11 10
143	pounds of reverted phosphoric acid	12 87
54.8	pounds of insoluble phosphoric acid	3 29
52.8	pounds of nitrogen	12 57
		$39 83

Standard Superphosphate.

(Collected of William E. Earle, Worcester, Mass.)

	Per cent.
Moisture at 100° C.	23.61
Organic and volatile matter	51.13
Ash constituents	42.87
Total phosphoric acid	10.99
Soluble phosphoric acid	8 32
Reverted phosphoric acid	.24
Insoluble phosphoric acid	2.43
Nitrogen	2.36
Potassium oxide	1.87
Magnesia	1.16
Insoluble matter	3.77

Valuation per ton of two thousand pounds: —

166.4	pounds of soluble phosphoric acid	$20 80
4.8	pounds of reverted phosphoric acid	43
48 6	pounds of insoluble phosphoric acid	2 92
47.2	pounds of nitrogen	11 33
37.4	pounds of potassium oxide	1 87
		$37 35

Bowker's Hill and Drill Fertilizer.

(Collected of Messrs. Puffer & Wilder, Springfield, Mass.)

	Per cent.
Moisture	12.10
Organic and volatile matter	51.16
Ash constituents	48.84
Total phosphoric acid	14.17
Soluble phosphoric acid	7.52
Reverted phosphoric acid	1.34
Insoluble phosphoric acid	5.31

	Per cent.
Nitrogen	2.70
Potassium oxide	None.
Insoluble matter	4.40

Valuation per ton of two thousand pounds: —

150.4 pounds of phosphoric acid	$18 80
26.8 pounds of reverted phosphoric acid	2 41
106.2 pounds of insoluble phosphoric acid	6 37
54 pounds of nitrogen	12 96
	$40 54

Bay-State Bone Superphosphate.

(Collected of Messrs. G. S. Clark & Son, Worcester, Mass.)

	Per cent.
Moisture	24.86
Organic and volatile matter	64.44
Ash constituents	35.56
Total phosphoric acid	10.25
Soluble phosphoric acid	8.28
Reverted phosphoric acid	1.03
Insoluble phosphoric acid	.94
Nitrogen	2.64
Potassium oxide	1.16
Insoluble matter	1.26

Valuation per ton of two thousand pounds: —

165.6 pounds of soluble phosphoric acid	$20 70
20.6 pounds of reverted phosphoric acid	1 85
18.8 pounds of insoluble phosphoric acid	1 13
52.8 pounds of nitrogen	12 67
23.2 pounds of potassium oxide	1 16
	$37 51

Matfield Lawn-Grass Fertilizer.

(Collected of W. H. Earle, Worcester, Mass.)

	Per cent.
Moisture	21.48
Organic and volatile matter	45.64
Ash constituents	54.36
Total phosphoric acid	3.09
Soluble phosphoric acid	.65
Reverted phosphoric acid	1.80
Insoluble phosphoric acid	.64
Nitrogen	3.37
Potassium oxide	3.25
Magnesium oxide	1.40
Insoluble matter	5.60

Valuation per ton of two thousand pounds: —

13 pounds of soluble phosphoric acid	$1 62
36 pounds of reverted phosphoric acid	3 24
12.8 pounds of insoluble phosphoric acid	77
67.4 pounds of nitrogen	16 18
165 pounds of potassium oxide	8 25
	$30 06

Russel Coe's Ammoniated Superphosphate.

(Collected of Rice Brothers, Worcester, Mass.)

	Per cent.
Moisture	24.90
Organic and volatile matter	53.48
Ash constituents	46.52
Total phosphoric acid	15.04
Soluble phosphoric acid	.49
Reverted phosphoric acid	11.45
Insoluble phosphoric acid	3.10
Nitrogen	2.42
Insoluble matter	6.83

Valuation per ton of two thousand pounds: —

9.8 pounds of soluble phosphoric acid	$1 22
229 pounds of reverted phosphoric acid	20 61
62 pounds of insoluble phosphoric acid	3 72
48.4 pounds of nitrogen	11 62
	$37 17

Bradley's XL Ammoniated Superphosphate.

(From David Mayhew, Esq., North Tisbury, Mass.)

	Per cent.
Moisture	19.20
Organic and volatile matter	45.48
Ash constituents	54.52
Total phosphoric acid	12.50
Soluble phosphoric acid	5.00
Reverted phosphoric acid	4.10
Insoluble phosphoric acid	3.40
Nitrogen	2.36
Potassium oxide	2.07
Insoluble matter	3.37

Valuation per ton of two thousand pounds: —

100 pounds of soluble phosphoric acid	$12 50
82 pounds of reverted phosphoric acid	7 38
68 pounds of insoluble phosphoric acid	4 08
47.2 pounds of nitrogen	11 33
41.4 pounds of potassium oxide	2 07
	$37 36

F. Coe's Ammoniated Bone-Superphosphate.

(Collected of Messrs. Sheldon & Newcomb, Greenfield, Mass.)

	Per cent.
Moisture	15.39
Organic and volatile matter	57.32
Ash constituents	42.68
Total phosphoric acid	11.87
Soluble phosphoric acid	9.09
Reverted phosphoric acid	.13
Insoluble phosphoric acid	2.65
Nitrogen	3.35
Insoluble matter	3.42

Valuation per ton of two thousand pounds:—

181.8	pounds of soluble phosphoric acid	$22 72
2.6	pounds of reverted phosphoric acid	2 34
53	pounds of insoluble phosphoric acid	3 18
67	pounds of nitrogen	16 08
		$44 32

Bowker's Lawn-Dressing.

(Collected of Messrs. Wilson & Holden, Worcester, Mass.)

	Per cent.
Moisture	9.67
Organic and volatile matter	49.77
Ash constituents	50.23
Total phosphoric acid	7.73
Soluble phosphoric acid	5.31
Reverted phosphoric acid	.80
Insoluble phosphoric acid	1.62
Nitrogen	4.93
Potassium oxide	3.75
Insoluble matter	3.03

Valuation per ton of two thousand pounds:—

106.2	pounds of soluble phosphoric acid	$18 27
16	pounds of reverted phosphoric acid	1 44
32.4	pounds of insoluble phosphoric acid	1 94
98.6	pounds of nitrogen	23 66
75	pounds of potassium oxide	3 75
		$44 06

Bowker's Ammoniated Food of Flowers.

(Collected of Massachusetts Agricultural College.)

	Per cent.
Moisture	10.42
Organic and volatile matter	52.06
Ash constituents	47.94
Total phosphoric acid	11.90
Soluble phosphoric acid	8.06
Reverted phosphoric acid	2.24
Insoluble phosphoric acid	1.60
Nitrogen	4.02
Potassium oxide	2.80
Insoluble matter	.48

Valuation per ton of two thousand pounds: —

161.2	pounds of soluble phosphoric acid	$20 15
44.8	pounds of reverted phosphoric acid	4 03
32	pounds of insoluble phosphoric acid	1 92
80.4	pounds of nitrogen	19 30
56	pounds of potassium oxide	2 80
		$48 20

Bradley's XL Superphosphate.

(Collected of Messrs. Sheldon & Newcomb, Greenfield, Mass.)

	Per cent.
Moisture	14.73
Organic and volatile matter	59.11
Ash constituents	40.89
Total phosphoric acid	10.50
Soluble phosphoric acid	8.66
Reverted phosphoric acid	1.11
Insoluble phosphoric acid	.73
Nitrogen	3.56
Potassium oxide	1.30
Insoluble matter	3.57

Valuation per ton of two thousand pounds: —

173.2	pounds of soluble phosphoric acid	$21 65
22.2	pounds of reverted phosphoric acid	2 00
14.6	pounds of insoluble phosphoric acid	88
71.2	pounds of nitrogen	17 09
26	pounds of potassium oxide	1 30
		$42 92

Bradley's Original Coe Superphosphate.

(Collected of Messrs. Horton & Phelps, Northampton, Mass.)

	Per cent.
Moisture	15.30
Organic and volatile matter	56.38

	Per cent.
Ash constituents	43.62
Total phosphoric acid	14.20
Soluble phosphoric acid	9.30
Reverted phosphoric acid	1.36
Insoluble phosphoric acid	3.04
Nitrogen	2.91
Potassium oxide	.83
Insoluble matter	3.31

Valuation per ton of two thousand pounds: —

186 pounds of soluble phosphoric acid	$23 25
27.2 pounds of reverted phosphoric acid	2 45
60.8 pounds of insoluble phosphoric acid	3 65
58.2 pounds of nitrogen	13 97
16.6 pounds of potassium	83
	$44 15

Guy's German Plant-Food for Flowers.

(Collected of Guy Brothers, Boston, Mass.)

	Per cent.
Moisture at 100° C.	4.37
Organic and volatile matter	60.36
Ash constituents	39.64
Total phosphoric acid	8.91
Soluble phosphoric acid	7.81
Reverted phosphoric acid	.71
Insoluble phosphoric acid	.39
Nitrogen	8 43
Potassium oxide	.27
Insoluble matter	4.13

Valuation per ton of two thousand pounds: —

156.2 pounds of soluble phosphoric acid	$19 53
14.2 pounds of reverted phosphoric acid	1 28
7.8 pounds of insoluble phosphoric acid	47
168.6 pounds of nitrogen	40 46
5.4 pounds of potassium oxide	27
	$62 01

PEAT.

I.

(Collected of Mr. Tillson, Massachusetts Agricultural College.)

	Per cent.
Moisture at 100° C.	85.34
Vegetable matter	13.14
Ash constituents	1.52
Nitrogen	.41

In air-dry state, 20 per cent moisture, 2.314 per cent nitrogen.

II.

Hampden County.

	Per cent.
Moisture at 100°-105° C.	75.03
Organic and volatile matter	97.61
Ash	2.39
Nitrogen (in organic matter)	.67

III.

Hampden County.

	Per cent.
Moisture lost at 105° C.	68.79
Organic and volatile matter	84.17
Ash	15.83
Nitrogen (in organic matter)	.61

APPENDIX.

COMPOSITION OF SOME COMPOUNDS IN FERTILIZERS.

One hundred parts of: —

Nitric acid contain 26 parts of nitrogen.

Ammonia contain 82.35 parts of nitrogen.

Pure nitrate of potassa (saltpetre) contain 53.4 parts of nitric acid and 46.6 parts of potassium oxide.

Pure nitrate of soda (Chili saltpetre) contain 63.25 parts of nitric acid.

Chloride of potassium contain 52.4 parts of potassium, 63.1 parts of potassium oxide, and 47.6 parts of chlorine.

Pure sulphate of potassa contain 54.9 parts of potassium oxide and 46 parts of sulphuric acid.

Bone phosphate (tricalcic phosphate) contain 46 parts of phosphoric acid and 54 parts of calcium oxide (lime).

Calcined gypsum contain 41 parts of calcium oxide (lime) and 59 parts of sulphuric acid.

Uncalcined pure gypsum contain 32.5 parts of calcium oxide (lime), 46.5 parts of sulphuric acid, and 21 parts of water.

Carbonate of lime contain 56 parts of calcium oxide (lime) and 44 parts of carbonic acid.

Sulphate of magnesia (free of water) contain 33.3 per cent of magnesium oxide (magnesia) and 66.6 per cent of sulphuric acid.

C. A. GOESSMANN.

Professor Goessmann asked instruction from the Board in regard to presenting to the public the market-value of the constituents of commercial fertilizers. The Board unanimously voted that Professor Goessmann should continue to give valuations as heretofore.

Mr. **Grinnell** then read a paper on

THE AGRICULTURE OF MASSACHUSETTS FOR FORTY YEARS.

The question is often asked, "What has caused the decline of agriculture in this Commonwealth?" And answers are given in a spirit of unintelligence, equal, in both the asker and the questioned, as to the real facts, which, when examined, show the assumed premises of a decline to be entirely incorrect in their conception.

It has for some years become quite common to decry the agriculture of our own State, to speak of it in a deprecatory manner, as if, when compared with other professions or occupations, it were a thing of secondary or even of tertiary importance, highly respectable to be sure, but not an elevated nor a paying profession, nor one which a man would follow if he had any other means of obtaining a living.

Farming at the East is by many regarded as too laborious and unremunerative. Young men, and old ones too, quit their comfortable homes and a reasonably independent living for the precarious chances of trade in towns and cities, or the uncertain risks of a shifting and dependent employment in and about mills, railways, and factories, or the scarcely less perilous chances of tilling the fertile but malarious lands of the West and South, or rending the bowels of the earth for precious metals; overlooking, in their desire for sudden and easily acquired riches, the priceless compensation of culture, society, schools, and the church, which they in their westward movement leave behind them.

For much of the desertion of the farm, and this seeking other localities and easier occupation by the children, the fathers themselves are largely responsible.

As a class, farmers certainly incline to be complaining, and discontented with their lot, looking downward and backward rather than upward and onward. They have not formerly taken the pains they should to make their homes bright and cheerful, attractive to the young people; nor have they encouraged their efforts, or mitigated the austerities of their labors, by sufficient consideration in occasional holidays off the farm with means of amusement, by consulting them on the management of the farm, or by making them, to some degree, partners or proprietors of some individual property (as a colt, a calf, or a lamb), the ownership of which, with the right to trade, gives a feeling of independence, and is one of the first steps tending to educate the young farmer, and to keep him contented upon the paternal acres.

A child growing up, if regarded with some consideration (something beyond mere paternal oversight), shown a little equality and companionship, will be much more likely to be reconciled to the life on the farm than if treated as a mere hireling, or, even worse than that, as a worker without wages and without sympathy, unregarded, and with every thing to make life enjoyable, except mere food, denied or grudgingly allowed.

It has been a conundrum of many years' standing, how to keep the boys upon the farms, and to make them appreciate the advantages they enjoy, and the motives which really should actuate them, as the children of Massachusetts, to stay at home.

Her rewards to industry, enterprise, and good conduct, directed by intelligence and under the guidance of temperance and of prudence in the cultivation of her soil, are sufficient to satisfy every reasonable desire, any proper moderate ambition.

Her social and religious institutions and privileges are preeminent, and such as no new and uncultivated territory can expect to reach, under the most favorable circumstances, for many years.

Inquiring for the reasons why farming is declared by many to be less profitable than formerly, and therefore to have declined, after the natural tendency of us all to magnify the past by depreciating the present, a prominent one is to be found in the fact that farmers themselves are quite too much inclined to belittle their occupation, its resources and results, underrating their advantages and blessings, and magnifying their difficulties and troubles, constantly complaining that they have to work too hard, and that they "can't make any thing at farming;" and yet they have good homes, good living, comfortable clothing, educated and well-cared-for families. They have a surplus for sale, and trade and speculate when an opportunity occurs.

It is true, they do not become suddenly wealthy; they do not on some fine morning find themselves thousands of dollars richer than when they went to bed the night before by a rise in railway or mining stocks; they do not see the hundreds daily coming in, earned by a long, anxious, persistent drudgery of years, at the sacrifice of health and peace of mind, behind the counter or on the wharf. Nor, on the other hand, do they make such disastrous failures, and find themselves overwhelmed in such utter ruin, as too often occurs to those who build on the uncertain foundations of trade.

It is a widely proclaimed fact that only about one farmer who prudently and faithfully tills the soil becomes a bankrupt as against nine of those who commit themselves to the vicissitudes of trade and manufactures.

When a hard-working farmer of correct habits, good judgment, and reputable character, fails, as we say, or becomes bankrupt, it may be very generally traced to one of three causes. Of course, a man may be pecuniarily ruined by such things as destruction by flood or fire, loss of animals or crops, or by wasting sickness; but these are the exceptional cases, and usually it will be found either that he commenced his farming in debt by an improvident purchase, or, oftener, with an ambition beyond his means, by taking his father's farm (the old homestead where he was born and reared), probably a good-deal run down, perhaps encumbered by mortgage, or with brothers and sisters to pay off or support, and perhaps with other encumbrances, making a load of interest and expenses under which he staggers for years, until at last, wearied and bowed down, he trips against some slight misfortune, and falls with a crash.

Another, prosperous and forehanded, successful to such an extent as to have made his credit high and bankable, free from debt, and trusting in others, has, in the kindness or the weakness of his nature, been induced to incur obligations for them which he is unexpectedly and often cruelly called upon to meet. Dismayed, crushed, almost stupefied, he is at last to see his farm, stock, implements, home, — every thing, — in the icy hand of the sheriff, all swept away, except the paltry allowance made by the State to an insolvent debtor.

Another, with an ambitious desire to further increase his gains, and over-confident in his own judgment and forecast, has ventured outside his legitimate calling to risk his money and his credit in some flattering but delusive speculation, only to find that both have gone "like the bubble on the fountain — gone and forever." But cases like these which have occurred in every community, productive of much distress, and exciting deep sympathy, are not to be cited to prove farming unprofitable. Nor, too, is it to make against our profession, if a farmer who is intemperate, lazy, thriftless, or, as we Yankees say, "shiftless," comes to the hammer, and goes to the bad. Any man in any business, with such disqualifications, would come to nought.

The rewards of agricultural labor in Massachusetts are ample, in that an industrious, prudent man, with a fair start, out of debt, may not only obtain, by skilful and careful farming, a comfortable subsistence, but his gains will prove so much more than his real and reasonable wants, that, in ordinary circumstances, he may early enter into the holy estate of matrimony, rear and educate a family of children, have the means of healthful and abundant comfort, exercise a liberal hospitality, and lay up a competent provision against the casualties of human affairs and the decline of life. Cases like these are most common among us, and are the rule, while the others are the exceptions.

Agriculture, in the view of every political economist, is the foundation of national wealth: it creates matter, and gathers its productions, without injury or diminution, from the exhaustless resources of the air and earth.

Every agricultural production, therefore, is a direct creation of so much additional matter. This, however, is not all: it is not, as in manufactures, the mere using-up or transforming of raw material; but, under good cultivation, the soil itself is put in a condition to become more productive, and the land itself is raised in value in proportion to the increased income which can be obtained from it. Labor thus applied may be regarded as a sure and permanent investment of productive capital.

It is unfortunate that this investment does not always return the results hoped and expected, and especially that so many of our people within the past forty years, dissatisfied with these returns, which they consider a want of success in farming, should have sought new homes elsewhere.

And yet this is not without a certain compensation. In the population of all civilized countries two forces are constantly at work, which, without much wresting of language, may be called the centripetal and centrifugal motions. One is a tendency, in redundant outlying inhabitants, to centralization (or drawing into cities and manufacturing towns a portion of this superfluity for work and wages) or to the cultivation of lands in their immediate vicinity, to supply the food-products necessary to support this large non-producing part of our population. The other, equally active, and perhaps more potent in results, is the disposition to migrate to broader fields and more untrammelled action. As a farmer's sons attain to manhood, they feel that they must do something for themselves. The paternal farm will not usually bear dividing. Manly pride and inborn independence forbid their continuance in service merely as "hired men;" and thus most of them must go elsewhere. Some are content to try their fortunes in towns and cities where their success is attested by the fact that more than four-fifths of the most prosperous business men were raised on the farm: others, with a larger ambition, strike out to make themselves homes in new lands and among a sparse population.

Thus from this necessity — the impossibility of all remaining at the old home — come the most successful men of the towns; and from the same source — New-England farms — new States are settled, populated, and governed.

An examination of the Federal census of 1830, and a comparison with it of the returns just collected by the census of 1880, show an increase in the population of the whole State, during the past fifty years, of 1,172,604; and it also shows a steady, almost unvarying increase, since 1776, in every county in the State, with the exceptions of Barnstable, Dukes, and Nantucket, — never agricultural counties, and which have lost during the past fifteen years, through the continued depression and destruction of their fisheries, only about four thousand. Although the counties have made steady gains, it will not be supposed that all the towns in a county have: some of them, on the contrary, have lost more than half the population they owned fifty years ago, while others have grown from hamlets to popular cities in the same county.

Except in the three counties above mentioned, the decrease has, in almost every case, been from the hill towns, and the accretions to those through which lines of railroads have been conveniently located, or manufactures established.

Another assigned reason for the supposed decline of our agriculture, and perhaps the most prominent, is the lessened numbers of some classes of our animals, and greatly reduced amounts of certain crops; while the greatly improved character of our animals and quality of our crops, with consequently largely enhanced values and prices, are quite unknown or overlooked.

In speaking of a decline in our agriculture, we can only prove or disprove it by a careful comparison of the productions of the present with those of the past; and I have, as the date of the past, taken the indefinite time covered by the Federal census of 1840 and 1850 (the earliest returns of agriculture) and our State valuation of 1845, and, as the recent date, I have taken our admirable State census of 1875 (the latest full information we have), with some returns from the Federal census of 1880, for which I am indebted to the courtesy of the able superintendent.

And it will be observed, too, that, in making these comparisons with any accuracy or effect, it is not merely in looking at *gross* amounts, but at individual values, acreages, and quality, that we must determine this vexed question of decline.

In making this examination, the all-important fact to be noted is, that, while there has been a great decrease in the number of our animals and in the aggregate of some crops, yet, in every single instance, it will be seen that the increase in the value of the animals individually, and of the different crops by measure, and in the amounts grown to the acre of each, and the vastly improved quality as shown by the prices, — all indicate a wonderful improvement in our breeding and our cultivation, ranging from twenty to a hundred per cent.

And be it remembered, too, that if the gross amounts in certain branches of our stock, and in certain crops of our production, have been reduced in later years by importation from the West of articles the increased demand for which we could not supply, or which could be brought to our doors so cheaply that we could better afford to make other crops, or raise other animals at such a profit as to warrant us in so doing, and thus paying for these imported articles,—this is not by any means to be taken as an evidence of poor farming, or a decline in our agriculture, which has not declined in theory or in practice. Within the past half-century, greater advance has been made in scientific and practical agriculture than in any two hundred preceding years; and this has been the case in every department of science and of art.

Society has changed, and greater requirements are made in every ramification of our lives; and the ingenuity of man has been taxed, and successfully, to meet them. Nowhere does this manifest itself more forcibly than in our agricultural operations.

While these various reasons have operated to give so general an impression that we are retrograding in our farming, it is well to remember that appearances are proverbially deceptive, and that often "things are not what they seem." And we shall find this eminently true of the subject in hand, and that the only way to get at the real condition of our agriculture is to take the figures, as given in successive decades by United-States marshals and by our town assessors, taken every five years alternately from 1840 to 1880; and no exception can fairly be taken to these sworn returns, which are the basis of our government expenditures, and must be admitted to be authority.

The valuations given below are taken from the assessors' returns for 1845 and 1875, and are nearly enough correct for our purposes; the values of our farm-products being about as much higher now than in 1875 as the difference between gold and currency then. We are obliged to take these figures, because the Federal census gives only amounts, and not values.

Forty years ago we had of neat-cattle in this State 282,574 head, worth $5,439,549, while in 1880 our neat-cattle numbered only 261,121,—over 21,000 less than those of 1840; but their value was $12,076,846, or $6,637,297 more than those of 1840, which then averaged only $19.25 per head, while the cattle of 1875 averaged $46.25 each.

This enormous increase in the value of our cattle results from the introduction of the best English breeds by the old "Massachusetts Society for the Promotion of Agriculture" (ever forward in advancing the interests of the farmers of this State) and by some public-spirited individuals in the eastern part of the State, and by the readiness and good judgment of our farmers in using these animals for the improvement of their herds of native cows; and also from the wise action of the State Board of Agriculture in excluding grade bulls from receiving premiums at the county shows, which has undoubtedly had much influence in advancing the character of our cattle.

Consider what a wonderful progress we have made in this direction. Less than fifty years ago there was not a Jersey in the State. There were then no pure-bred Devons nor Herefords. The first Ayrshires had just been imported by Mr. J. P. Cushing and the Massachusetts Society, and were still on trial; and even the Durham shorthorns, as they were then called, had not been so thoroughly tested as to satisfy all that they would endure the rigor of our climate, and prove desirable for the dairy.

The first bull of this noble breed, named "Cicero," with a full pedigree, was brought in by Mr. Coolidge of Boston, in 1818; then "Denton," the same year, by Mr. Williams, who sent him to Worcester, where he did great service; and, in 1820, "Fortunatus," "Cœlebs," and other grand bulls and cows by wealthy and public-spirited gentlemen of Boston; in 1823, "Admiral," sent by Sir Isaac Coffin, and some cows. From these, all well-bred bulls from the best herds of England, started our numerous shorthorns, which have given figure and style to the cattle of the State to such an extent, that such a beast as a "native" can scarcely be found.

These, for many years, furnished us with splendid grades for the stall; but stall-feeding has mostly gone by for us. Our beef now very generally comes from the Far West, — either on the hoof, or as dressed carcasses in refrigerator-cars, — not only for consumption here, but for export across the seas.

We do not raise as many young cattle as formerly; for, while we have 150,505 milch cows, as against 130,100 in 1850, we have only 38,000 calves growing up; but we send 3,600,000 pounds of veal to the butcher annually.

Our working-oxen now are only 14,571, as against 46,611 in 1850. Lamentable as it is, the ox, as a steady force on the farm, is being superseded by the horses, which went from 42,216 in 1850, to 59,629 in 1880, valued in 1845 at $53 each, and amounting to $2,237,448, while the horses of 1880, at a valuation of $110 each, amounted to $6,501,561; showing a gain in horse-flesh alone, on farms, of over $4,264,000, which certainly indicates a healthy decline in that direction.

At that time we were just breeding to horses of Morgan stock, having in the western and northern parts of the State the Cock of the Rock, Bulmeh, Sherman, and Woodbury Morgans.

At the East they had, among other thoroughbreds, some of the Messenger blood, and a grand horse called "Bellfounder," imported by Col. Jaques of the "Ten Hills Farm" at Charlestown, which left a fine strain of blood.

In later years we are breeding, more than then for speed, fast driving-horses, and seek to accomplish this, and to secure more endurance (bottom), by crossing with horses thoroughbred, or as nearly so as fast trotters can be found.

Our draught-horses, too, are being improved by an infusion of Perchoron blood, imported by the Massachusetts Society, which has proved very successful, and also by Clydesdales and Normans, which now come to us from Canada and the West.

SHEEP.

In the matter of sheep-growing and wool-producing, we have shown such a great falling-off, and such persistent negligence in this most profitable branch of our farming, as to have branded us as failing in our agriculture; and this, more than any other single thing, has brought reproach upon our skill, judgment, and foresight.

In 1838 we had 384,614 sheep, which sheared 1,056,327 pounds of wool; we had, in 1875, but 58,773 sheep, shearing 206,935 pounds of wool: showing, in less than forty years, a decrease of 325,841 sheep and 850,000 pounds of wool, or at the rate of over 8,000 sheep annually.

This diminution was mostly among the Saxonies and Merinos, which, at that early date, constituted two-thirds of all the sheep kept. It was thought impossible to compete with the West and South in raising those sheep and growing fine wool at a sufficient profit; and instead of turning their attention to the more profitable branch of sheep-husbandry, early lambs, and mutton, farmers, in disgust, sold their flocks of little Merinos, or allowed them to dwindle down, and never replaced them. Bad as this showing is, there is some consolation to be found in scanning the figures, and in the hope of a sensible return to the keeping of sheep, as evidenced by the fact, that, from 1875 to 1880 (five years), our sheep increased 6,350, or over 1,200 a year.

There is a very decided impression among the farmers in every part of the State, generally, that this most profitable and pleasant branch of our farm-industry would be doubled but for the destruction of their sheep by dogs, — a terrible evil to those who are attempting to keep sheep, and deterring hundreds of others who would like to raise them if they could be protected. It must be overcome in some way, — either by additional legislation, or by more stringent enforcement of the laws we have, or both.

Of the sheep of 1840, over two-thirds were Saxonies or Merinos, which were valued at $1.57 each, and which sheared an average of only two pounds and fourteen ounces to the fleece of wool, worth 38 cents per pound; their lambs, when raised, being worth from $1 to $1.50 each, and rearing only about 75 lambs out of 100 ewes. Now, it is not strange that the farmers of those days were sick of such sheep, and found that growing fine wool didn't agree with them; but it is strange that more of them hadn't enterprise and forecast enough to shape their course somewhat after the fashion of the present day.

In 1875 our sheep averaged $4.50 each, sheared four pounds of wool worth 42 cents per pound, and raised nearly 30,000 lambs (at the lowest rate of 110 lambs to the 100 ewes), averaging in most counties $4 each, and thousands selling from $7 to $10 each, — amounting, in all, to over $115,000.

Herein consists our improvement: our sheep have nearly trebled in value; they have nearly doubled in the weight of fleece (which is worth ten per cent more than then), while the lambs we raise are a third more in number, and worth, each, three or four times as much as then; and this comes from the new departure, — in making mutton and lambs the first consideration, and the wool secondary (which is medium, combing, and coarse), that we can produce from larger and more profitable sheep, and which, sheep for sheep, is worth more than the fine-woolled fleece.

When the farmers in Franklin County can keep their ewes for $1 in summer, and $2.50 in winter, with $2 for the lamb's feed (making in all $5.50), and receive $1.60 for the fleece and $7.70 for the lamb (counting twelve per cent of twins), leaving, beside the old sheep, nearly $4 net profit, with a cord of the best manure for every ten sheep (to pay for the labor of attending them), — who, comparing this with sheep-keeping forty years ago, will say there has been any decline in this branch of our agriculture?

SWINE.

Another item of farm-stock, which has apparently decreased in numbers, is swine. In 1845 we had 104,740 swine, appraised at $917,435 (at $8.75 each): in 1875 we had 41,255 hogs and 41,009 pigs, valued at $963,321; showing, that, by our improved breeding and care, 21,485 less swine than were kept in 1845 were in 1875 worth $45,886 more.

In those days but little attention had been paid to the breeding of hogs for fine points in this part of the country, or, indeed, anywhere. The farmers had the Grassfed, or Irish Graziers, from New York, the Mackay and the Byfield, both which originated in the eastern part of our own State, and which soon ran out because there was no fixity of type. Then the Berkshires were introduced about 1832; but they did not, at that time, meet the expectations of breeders, and fell into disfavor, though within the last dozen years they have greatly improved.

About 1844 the Suffolks were introduced by the Messrs. Stickney of Boston, and have been of great service in fining down our larger breeds of pigs. Since then we have had the Chester Whites, the Poland China (or Magio), and the Yorkshire, the last imported by the Massachusetts Society.

Forty years ago farmers thought they did well in bringing their hogs to dress 350 or 400 pounds at fifteen or sixteen months old, while we make them, at that age, 500 to 550, or, better still, at eight or nine months old we make them dress 250 to 300 pounds.

POULTRY.

Perhaps the most remarkable showing is in the poultry and eggs, which in 1840 were estimated at $178,157, and in 1875 at $1,789,000, the eggs alone being worth nearly $1,000,000. 'Tis but a few years since the only fowls we had were the common dunghill fowls, so-called: they laid their eggs where they chose; and those which were not discovered by the farmers' children or the hired men were hatched where they were laid, and such chicks as escaped the perils of skunks, hawks, rats, and other vermin, were sacrificed at Thanksgiving, illy-grown and carelessly fattened. Now our fowls bred for a purpose are very commonly confined in convenient houses: they lay their eggs in appointed places, their chickens are cared for, their manure almost as much valued as grain, while the dressed poultry and eggs, though in amounts individually small, when collected and summed up, show an aggregate that is wonderful.

HAY.

Of hay, we cut, in 1840, 569,395 tons, valued at $4,908,184, appraised at $8.50 per ton: in 1875 we mowed 671,130 tons (over 6,000 more than we ever cut in any year), worth $10,660,268 at $15 per ton, — a gain of over $6,752,000.

The improvement in our hay-crop is one of the most healthy evidences of our advancement in agriculture. It is certain that good, sweet, well-cured hay, of one kind or another, is the strength, the main stay, of our New-England farming. Corn, wheat, rye, oats, or potatoes may fail by blight, mildew, rust, insects, or any other of the plagues which the farm has to encounter; but, with good hay, every animal on the farm cannot only live, but thrive, if its capability be not over-taxed: and one of the greatest gains we have made in our farming is in improving our mowing-lands, and in getting our hay early and quickly, as taught us by the chemistry of the farm, and accomplished by means of, and through the perfection of, our agricultural machines and implements, which are a blessing not vouchsafed to the farmers of fifty years ago.

CORN.

We raised of corn, in 1840, 1,809,192 bushels, worth 68 cents per bushel; and year by year the quantity was increased, till it reached its highest point, in 1855, of over 2,500,000. From this it gradually decreased till 1875, after which it advanced at such a rate, that in 1880 it was only 11,597 bushels less than in 1840; but at the going price of Northern corn (90 cents per bushel) it amounts to $1,617,735, or $387,485 more than the crop of forty years ago, and the most encouraging feature is an increase of nearly 800,000 bushels during the past five years.

The lessening of the amount of corn-growing was partly owing to the eagerness with which people in every county of the State, except Nantucket, pursued the cultivation of tobacco, which for some years brought large sums (running from $57,000 to $1,500,000), but consumed the best corn-land the most and best of the manure, and a very large proportion of labor and attention.

For feeding to cattle, farmers have thought they could import corn from the West at a less price than they could afford to raise it; and this may be so, where every thing must be done by hand-labor. If fields are large enough and smooth enough to use horse-power in planting and cultivating, corn can be grown here for a less price than we pay for Western, which is not as good.

Mr. Bowditch of Framingham raised on seventeen acres and a quarter 100 bushels shelled corn to the acre at a cost, carefully kept, of 30½ cents per bushel, and with no hand-labor till harvesting.

Some half-dozen competitors in Franklin County for the special premium reported to have raised from 75 to 100 bushels of corn to the acre at a cost of only 22 to 35 cents per bushel.

OATS.

The decrease for some years in the crop of oats is partly accounted for by importation; but probably not as many are used or raised as formerly.

In 1845 we grew 1,238,159 bushels, which, at 33 cents per bushel, amounted to $405,657: in 1880 we harvested 645,159 bushels, which, at 64 cents per bushel, amounted to $412,901, or $7,244 more than the crop forty years ago.

Many farmers think they can more easily, if not profitably, raise fruits, large and small, market-vegetables, potatoes, or tobacco, and buy grains to feed their cattle, and special fertilizers to supply the lack of farmyard-manure caused by neglecting corn and grain crops. Doubtless they are somewhat justified in this, and specially in the crops of tobacco and potatoes.

POTATOES.

Potatoes, if thoroughly cultivated, leave land in good condition for a succeeding crop, and usually pay well enough for a farmer to sell, at a fair profit, a surplus beyond what he needs to eat and to feed.

In 1845 we dug $1,309,000 worth, at 33 cents per bushel: in 1875, at 65 cents per bushel, we had $2,349,815 worth.

TOBACCO.

Tobacco has at times been a very paying crop; and perhaps, if judiciously managed, it might always be so. At any rate, it has brought a large amount of money into some parts of the State.

In 1840 we had but $3,854 worth, at 6 cents per pound: in 1880 we packed 5,369,436 pounds, valued at 13 cents per pound, amounting to $698,805.

The only way in which many farmers can look with favor on tobacco is in following it, after two or three years, with wheat, and stocking down to grass, by which course one can cut forty bushels of wheat to the acre, and three or four tons of hay, for three or four successive years; the heavy manuring and the thorough cultivation which the tobacco receives leaving the land free from weeds, and insuring heavy, clean grain and grass crops for a long time.

Next to our neglect of sheep-raising, our greatest remissness is in not growing wheat, which has gone from 157,923 bushels in 1840 down to 15,768 bushels in 1880, valued at $1.68, as against $1.14 in 1845. By the census of 1880 it seems that we are improving, as we raised over 2,000 bushels more than we did in 1875; but in 1874 the farmers of this Commonwealth sowed 21,351 acres of rye (which yielded but 11¾ bushels to the acre) worth 99 cents per bushel, and only sowed 677½ acres of wheat (which averaged 20⅓ bushels to the acre) worth $1.68 per bushel. Much of the rye, to be sure, was sown where it was supposed nothing else would grow, — on light or "plain land," and without grass-seed; but that does not excuse our not growing more wheat, especially where land is to be stocked down to grass or clover, for which purpose it is a better grain, and safer than rye or oats, which are commonly used.

In 1838 the Legislature of Massachusetts, perceiving the decline of wheat-growing within the State, believing that every farming community should to some considerable extent raise its own breadstuffs, and realizing the importance of continuing and encouraging this branch of farm-industry, offered bounties for wheat-growing as follows: "That to every person who shall raise fifteen bushels of wheat shall be paid two dollars, and five cents on each additional bushel, and, for any person who shall raise the greatest quantity on any farm (not less than five hundred bushels), one hundred dollars."

Under the stimulus of that bounty, there were grown, in 1838–9, 108,570 bushels, and, in 1840, 157,923 bushels, averaging sixteen bushels to the acre, which was not only above the average of the country, but was the largest yield of any one of the United States, as was the yield of 1875 of over 20 bushels. Why is it that the 9,670 acres of forty years ago have dwindled down to 677 in 1875? It can be grown, and is, in some parts of the State, and yields and pays better than any other grain-crop.

It costs no more to stock down land with wheat than with rye in the fall, or with oats in the spring: it pays more, and it is a better grain for that purpose.

There is no question but that our home-grown and ground wheat makes better and more nutritious flour than the very white, patent, scoured and bolted wheat of the Western mills, and, for economy and health, should be encouraged here.

Wheat is composed largely of starch (something more than one-half) and gluten (about one-fourth). The gluten is the nutritive part, forming muscle, but it is not white; and Western millers have patented various devices to free the flour from that portion of the grain which shall detract from its superlative whiteness, and they thus eliminate that which is the most nutritious to an extent which our millers at home do not and should not attempt.

It is an unquestioned chemical fact, that wheat, ground and unbolted, makes the healthiest bread we can eat; but between that and the superfine flour of the West is a true medium of making sweet white flour, retaining the nutritive portion. Many of our best farmers in the western part of the State have never had a barrel of flour in their families that was not grown on their own farms; and they and their wives, and many who have sat at meat and broken bread at their hospitable tables, find it unsurpassed.

In Franklin County one of the leading farmers, who spreads a generous table, has on it bread from ninety bushels of wheat grown on his farm from two acres in 1880, and has recently harvested from four acres a hundred and sixty-eight bushels. Another has often had forty bushels, and for twenty years has grown his own flour with never less than twenty-five bushels to the acre. An honored, white-haired farmer from the hills west of Greenfield may be seen, on some day in early winter, passing through that village on his way to mill, with a wagon-load of wheat from his own farm for his year's supply of flour, as he has done for nearly a half-century with scarcely a failure; and his is usually spring wheat.

It is a creditable fact that Franklin County raises more wheat than all the rest of the State of Massachusetts.

It has never been satisfactorily shown why, in a moderate way, wheat may not, here in the mixed farming of New England, give a fair return.

In looking over the statements of wheat-growers, as returned in our State reports, none appear where the crop was less than thirty bushels to the acre, or the cost of production, including fertilizers, over fifty cents per bushel.

With thirty bushels to the acre, worth a dollar and a half per bushel, and ten dollars for the straw, making fifty-five dollars, and deducting the cost of raising and harvesting at fifty cents per bushel, you have forty dollars net profit on the acre, and your land ready for the grass-crop. In another way of calculating, five bushels of wheat go to a barrel of flour, as is commonly said, though they really overgo: and the farmer who raises thirty bushels of wheat on an acre can have six barrels of prime flour worth, over the cost of milling, thirty-six dollars; six hundred pounds of middlings and bran of the best quality, worth nine dollars; and the straw, ten dollars; making fifty-five dollars. Deduct fifteen dollars as the cost of production, and the profit of forty dollars remains.

These figures are all moderate, are facts, not fancies; and it does seem that the growing of wheat in Massachusetts is a branch of farm-industry that deserves more attention than it is receiving at the present day.

RYE.

Of rye we had, in 1844, 446,925 bushels, which, at 73 cents per bushel, amounted to $320,033 ; in 1880, 213,716 bushels, valued at $235,087, at $1,10 per bushel, — a loss of $92,346. Probably the increased value of the straw would somewhat reduce this deficiency; but it is undoubtedly true that not so much rye is grown as formerly, not so much eaten in families, nor consumed on the farm.

BARLEY.

In barley, while we show in 1880 an increase of more than 33,000 bushels over 1875, yet it is less by 41,800 bushels than 1845; but, the value being doubled per bushel, the loss is only about $25,000.

BUCKWHEAT.

In buckwheat we have gained 34,833 bushels and about $45,000; its value being 90 cents, as against 47 cents in 1845, and the yield 25,000 bushels larger than in 1875.

DAIRY.

It is, however, in the dairy, that our best show is made. There are no full returns, of the milk produced, in the State census of 1845 or 1855, but there were probably sold in 1845 about 2,855,412 gallons; and, with the valuation at 11 cents per gallon, it would amount to $304,917, beside what was made into butter and cheese.

In 1855, 3,009,916 gallons were sold, at 23 cents per gallon; and, in 1865, 10,079,180 gallons, at 19 cents per gallon. In 1870, we sold 15,284,057 gallons, at 18 cents. In 1875, we made 35,698,671 gallons of milk, at 17 cents, amounting to $5,934,671.

This advance has been made by the improvement in our milch cows, of which we had no more than in 1855, and is one of the most marked and convincing proofs of the progress we have steadily made in our agriculture in the past forty years. Our cows also have increased in ten years nearly 14,000.

What proportion of this milk is sold, consumed on the farms, or made into butter and cheese, there are no figures to tell with any accuracy, nor can any calculation be made; but in 1845 we made $1,116,709 worth of butter, then worth 15 cents per pound, and of cheese $398,174 worth, at 5 cents per pound. In 1875 we churned butter to the amount of $2,747,848, at 35 cents per pound; and of cheese we made to the amount of $405,293, at 13 cents per pound.

While the statistics show a gross increase of our dairy-products, in forty years, of several millions of dollars, it is impossible, as above mentioned, to state it with exactness, or to apportion the whole product of milk between that sold and what is made into butter and cheese, as some of the earlier returns indefinitely divide them; others simply give them all in gross as dairy-products, or merely the number of pounds of butter and cheese, without values, and with no mention of the milk. Our own last census of 1875, most complete in all other matters, is unfortunately deficient in not giving the amount of milk sold, nor how much is made into butter and cheese.

In 1845 the gross amount of dairy-products is given as . .	$1,819,800
In 1855 the same is	2,598,664
In 1865 (during the war) it is	4,091,462
In 1875 the whole amount of milk is	5,934,671

But the butter and cheese were made from this milk. Calling three gallons of milk for a pound of butter, and one gallon for a pound of cheese, we find left, in 1875, 10,651,144 gallons to sell, and that the cows of that year gave an average, through the State, of about 1,200 quarts each; while, by the same rule, the cows of 1865 averaged about 700 quarts, and the cows of 1855 about 800.

The largest milk-producing counties are Worcester, Berkshire, Middlesex, and then those counties having in or about them cities or large towns which consume great quantities of that necessary fluid.

The largest butter-making counties are Worcester, Franklin, and Berkshire, which produce more than half the butter made in the State.

Worcester, Berkshire, and Hampden make five-sixths of all the cheese manufactured in the Commonwealth.

With rapid transportation and refrigerator-cars, the great creameries of Iowa, Minnesota, and Wisconsin are passing us in the quality and price of butter; and it behooves us to take the utmost pains with our cows, our milk, and our butter-making, to retain control of the Boston market, for home consumption, and for export. Good cows, good feed, and thorough cleanliness at every step in the manufacture, will secure this.

Without doubt, one of the most prevailing and best credited reasons for believing that agriculture has declined in Massachusetts, is judging from the fictitious stand-point of the very high prices ruling for agricultural products during the late war, and for some time after its close.

Through that fearful strife, when over a million of able-bodied men from the North were changed from producers to consumers, the Government, obliged to maintain them in the field, was, from the inadequate supply of all articles of food and clothing which come from the farm, forced to pay very largely for them; and thus a scale of prices was established through the country, far above the rates which had prevailed before the war, and which we had been accustomed to receive.

These, with the inflation of the currency, induced among us more extended cultivation; and this, with a scarcity of labor, enhanced the cost of all that we produced.

This increased production continued for some years after the war; and, when it declined, prices still were kept up, and it was a long time before they were brought down to *ante bellum* times.

In the long run it was a misfortune for our farmers to have received such high-sounding, paper-money prices, as they did for every thing they made, raised, or grew during this period. A factitious value was created which could not and did not continue very long after the emergency creating it had passed. It was disappointing and hard for farmers to realize this fact, and they did not readily nor cheerfully return to normal prices.

This condition, existing for a period of six or eight years, with a reluctant return to old rates, has given an impression of a general decline in agriculture which is incorrect.

Our animals are finer, our products better, and our crops superior, both in quality, and in the amount of each grown to the acre.

Much of this is due to the perfection in, and the universal use of, our agricultural machines and implements.

Of the number or value of these in use upon our farms, there are no returns back of 1850, where they are put down at $3,209,584; in 1875, at $5,321,168,-- a gain of over two millions. All of these, except the simplest, have been brought into use within the past forty years; and beyond these figures it can only be left to the imagination to estimate the benefit we have received from these useful and comfortable aids to our farming.

The land is better tilled with our perfected ploughs, both land-side and swivel, pulverized with the wheel-harrow and the smoothing-harrow, — implements unknown forty years ago. Our corn may be planted and cultivated solely by horse-power, our grains cut and threshed by machines; while with the mower, the tedder, and the horse-rake, we put our hay in our barns in better condition in twelve or thirty-six hours than was formerly done in three days.

Our dairy utensils and implements have wonderfully lightened woman's work in handling milk, butter, and cheese, and are the admiration of all lands.

For winter use we have good machines for threshing our grain, shelling corn, cutting hay, stalks, and roots; while our small tools and implements are incomparably superior, not only to those used by the farmers of a half-century ago, but also to those now in use by any people on the globe.

In our appliances for farming, there is no decline. From want of statistics in earlier years, it is impossible to show the comparative progress we have made in the improvements on our lands by draining, ditching, and reclaiming poor and unproductive land; but the immensity of this is apparent in every town in the State. Nor can we compare the improvements of setting out trees, vines, and fruit-bearing plants, to say nothing of the universally increased disposition to cultivate flowers within and about the farmers' houses, — certainly indicating the growth of cultured and refined tastes.

A farmhouse window filled with blooming plants, or a bright flower-bed before the house (both now so common), show good taste and thrift within, quite inconsistent with the idea of decline.

The introduction of special fertilizers into our system of agriculture, to supply the want of farmyard-manure where there is a deficiency, and also for appliance in preference to manure for some purposes, must be reckoned among the great improvements of this age.

Less than fifty years ago, the first cargo of guano was brought to this country from the Chincha Islands, — the first special fertilizer used by us, with the exception of a worthless manufacture called poudrette.

Soon after commenced the preparation of special compounds of the chemical constituents which supply plant-food, which has continued with a steady increase to enormous proportions, and which has been of incalculable value in our farming and gardening operations.

The manufacture and introduction of honestly compounded special fertilizers is an immense advance in the agriculture of Massachusetts.

A brief summing-up of the gains and losses in our agricultural productions within thirty or forty years prior to 1875 and 1880, according to the Federal and State census reports, shows an increase in the values, as follows: —

	Increase.		Decrease.
Horses	$4.264,000	Sheep . .	$265,327
Neat-cattle . . .	6,637,297	Wool . .	260,940
Swine	45,000	Wheat . .	21,497
Poultry and eggs . .	1,610,843	Rye . .	92,346
Slaughtered animals, .	250,000	Barley . .	25,778
Dairy produce . .	3,144,055	Broom-corn .	75,000
Hay	6,752,084		
Corn	387,485		$740,888
Oats	7,244		
Potatoes. . . .	1,040,785		
Tobacco. . . .	694,172		
Buckwheat . . .	45,000		
Orchard products . .	824,014		
Maple sugar and sirup .	100,000		
Small fruits, garden produce, berries, roots, etc.,	3,061,298		
	$28,863,277		
	740,888		
Increase . . .	$28,122,389		

In some of the items, where the last returns have been procured from the census office, the comparisons have been brought down to 1880, and make a most favorable showing of a large increase over 1875, which has necessarily been taken as the basis of most of the prices.

If we had the completed returns of 1880, we should find this amount increased to fully thirty millions.

And when to this are added the millions expended in reclaiming land, in planting trees and vines, in good houses and grand barns, and in improved agricultural implements, machines, and appliances for lightening labor, it would seem that in a material point of view the question, Has agriculture declined, is answered, Most decidedly.

Much of this talk of the decline of our agriculture is engendered by some of those living on poor farms, or in the hill-country, and in regions a little remote from convenient railway-stations and a market, and perhaps themselves lacking in some of the elements which are necessary to success in any occupation. Judging from the scope of their own limited vision, they think that the number of farms, value of farms and farm buildings, and acres of cultivated land, must have been greatly reduced. But let us see how this is.

Comparing again the Federal census from 1850 with the State census, we find that the number of farms has increased from 34,069 in 1850, 35,200 in 1860, 26,507 in 1870, 44,549 in 1875; the average size being 99 acres in 1850, 94 in 1860, 103 in 1870, and 76 in 1875.

The value of farms and farm buildings during the same time has increased from $109,076,347 to $182,663,140, or at nearly the rate of $3,000,000 annually.[1]

If an occasional deserted house or tumble-down barn is pointed out, and cited as evidence of decline, there are to be seen, for every one of those, scores of pleasant, commodious, and attractive farmhouses, and large, handsome, and convenient barns and out-buildings, to prove the negative of any such assertion; and perhaps there could be no more convincing witnesses against the fallacy of that proposition than the hundreds of pretty and comfortable schoolhouses sprinkled all over the Commonwealth, displacing the old, cold, dreary nurseries of New-England manhood, where, fifty years ago, the youthful blood was chilled over unavailing fires, and quickened by the unfurloughed ferule.

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[1] In 1850 the average value of the farms was $3,205, and of machines and implements on each farm $94. In 1875 the average value of each farm was $4,100, and of machines and implements on each farm $120.

The acres of cultivated land have increased over 31,000 from 1865 to 1875: and although in some of the staple crops the acreage is not as much as it was thirty or forty years ago, yet the yield to the acre of these is much more, which shows in that time an advance of corn from 28½ bushels per acre to 35¾; of wheat, from 15¾ to 20½; barley, from 20 to 25½; oats, from 21¼ to 31¼; onions, from 313 to 344; potatoes, from 95 to 108.

All our grain-crops have largely increased in acreage since 1875, — oats, 40 per cent; barley and buckwheat, 75 per cent; and corn, about 88 per cent, or 790,000 bushels more than in 1875.

This often-repeated charge, that the agriculture of Massachusetts has greatly declined, has not facts to support it. It is foolish, and is derogatory to the whole of the citizens of the Commonwealth, as well as to the farmers. It is uttered by those who are ignorant of the condition of our affairs now, as compared with the past, who have never examined nor compared the statistics of the past and the present, and who are so aptly described by a Latin poet and farmer, — himself, fifty years before our Saviour's birth, born and reared on a farm, and afterwards the owner of the famous "Sabine Farm," — that I venture to give his own language: "*Difficilis, querulus, laudator temporis acti*" ("discontented, complaining, and always praising the times that are past").

We have seen, in figures which may not be traversed, what we have lost, and what gained, in our farm productions; and taking the amounts less in 1875 than in 1845, which show all the loss that could be claimed, the single item of the increase in poultry and eggs, or of tobacco alone, out-counts them all; nay, more: in the limited returns accessible for 1880 it appears, that, since the census of 1875, the horses of the State have increased by 9,892; the milch cows, by 26,454; and the sheep, by 7,000; or, according to the valuation of 1875 ($2,953,520), about four times the whole loss from 1845 to 1875. During the same period of five years our grain-crops have increased by $950,219.

If, then, there has been no decline, but an immense advance, in our material prosperity in agriculture, is there any man so bold and reckless as to declare that the farmers of Massachusetts have declined in a social, domestic, and intellectual way?

Fifty years ago the first line was not built of that vast network of railroads which stretches over all portions of our Commonwealth, bringing every man, even from the remotest part of the State, within a half-day's journey of a market, and affording quick and easy intercommunication between every county, giving opportunities for forming and continuing acquaintance, gaining general information, and transacting business unimagined in those earlier days of slow and tiresome locomotion.

Our turnpikes have become highways, and our highways perfected. An agricultural college, the Board of Agriculture, county societies, farmers' clubs and institutes, have been established to enlighten and quicken the minds, and to draw out the experiences, of farmers, by frequent meetings for free discussions, and pleasant interchange of opinions on those subjects that most concern them.

It is less than fifty years since Justus von Liebig first opened the volume of agricultural chemistry for common inspection, followed by his contemporary Boussingault; while Voelcker, Lawes, Gilbert, and Anderson, in the Old Country, and later, in our own State, Dana, Nichols, Sturtevant, Stockbridge, and Goessmann, have been worthy successors and exponents of that science.

The chemistry of agriculture has taught us, first, the importance of draining and subsoiling, loosening and aerating, the hidden depths of the soil, that plants may there find proper moisture and sustenance; it has taught us somewhat the mysteries of plant-life, and how plant-organisms are developed to full maturity; it has taught us respecting the offices of the soil, the rain, the air, heat, and moisture, in accomplishing this work; it has taught us that plants do not obtain all their elements of growth from the mingled rock-dust and humus which constitute soil, but that, wonderful as it may seem, they form from the atmosphere, almost alone, solid forms of plant-organisms; it also teaches us, that, in supplying the food necessary for vegetable growths, different plants require different nutriment.

It has clearly and minutely explained to us the nature of fertilizers, and how they become plant-food, and wherein consists the value of our farmyard-manure, and how it may be supplemented in another form by chemical elements, which, when applied, nature assimilates to the wants of the plant. It has taught, not only how to use these special fertilizers, but also to distinguish between those which are genuine and valuable and those which are fraudulent and worthless.

In a word, agricultural chemistry has done more than any thing else during the past half-century to elevate the hard-working but intelligent farmer from a mere imitator — in his cultivation — of those who went before him, to be a reasoning, thoughtful manager of such elements as are under his control.

Forty years ago how many farmers would understandingly or patiently have endured an essay from a brother farmer, or from one of our teachers, which treated of animal or vegetable physiology, nitrogenous or non-nitrogenous food for stock, of the importance of nitrogen as plant-food, of phosphates or nitrates, of the chemical composition of manure, of the aeration of the soil, and a hundred other such matters now taught to the children in the schools, and applied by the fathers on the farms?

While the acquirement of this scientific knowledge has tended to elevate and expand the ideas of the farmers, improved machinery, as an adjunct, has enabled them to employ more brain-work in the management of their farms, while reducing the amount of the severest physical labor yet to increase their productiveness.

Fifty years ago the farmers cut the ripening grain with the sickle or the cradle. The cheerful clatter of the mowing-machine had never startled the stillness of the early morning on their broad meadows or their well-tilled hillsides: they mowed with the scythe.

> "Each stalwart mower, emulous and strong,
> Whose writhing form meridian heat defies,
> Bends o'er his work, and every sinew tries."

They turned the grass with a fork, and gathered the hay with a hand-rake. They broke the "stubborn glebe" with a hard-running plough, and pulverized the soil by persistent dragging with the one only A harrow. They planted and cultivated their corn with the hand-hoe, and finally threshed it, as they did their grain, with the clumsiest of all our tools, the flail of antiquity.

Not only has labor been lightened on the farm and in the house, but the comfort of the family has been vastly enlarged. The increased population about us, and the multiplied facilities for transportation to foreign markets as well as those at home, and the varied demands of those markets, have developed to a very great extent many new productions, and increased others not reckoned among the staple articles, but which have become necessities as advanced ideas and a more cultivated taste have demanded, adding comforts, conveniences, and luxuries to our lives, which were not required, because not known, fifty years ago.

Not the least in importance among these is the comfort of heat and light in the house, wherein the modern stoves and lamps are powerful factors.

In travelling across the country, either driving, or, oftener, from a railway car, one often sees, far away on some hillside, in a farmhouse window, the brilliant gleam of a kerosene lamp, shedding its cheerful light on the busy workers within, and also flashing clear and bright from out that window across the road, over the fields, swamps, and streams, clear and steady, — a token of a cheerful, comfortable home within, and an inviting tender of neighborly hospitality.

It is not a forced comparison to say that this, as contrasted with the feeble, flickering flame of the tallow dip of former days, is an apt illustration of the present and the past, on the farm as well as in the house.

Much of our progress we owe to the very great advance in agricultural reading and education, and this by handy books, specially our admirable State and County reports, our well-conducted agricultural papers, and the stimulating influence of farmers' clubs and institutes. If, then, we produce better animals, and a better quality of all the fruits of the earth, and consequently obtain better prices than our fathers did, and produce these articles easier and cheaper than they could, and have, beside, added to our productions a great number of paying articles unknown to them, contributing to our pockets and conducing to our health and comfort, and have at the same time improved our professional knowledge, and elevated our social and domestic condition, — wherein have we declined?

Farmers and their families live better and dress better than they did, have more amusement and enjoyment, more intercommunication and travel, than formerly, with greatly increased comforts and conveniences of living.

While the average length of life in farms is known to have somewhat increased during the past half-century, the average of comfort, education, cultivation, and intellectual and social relations, has most certainly been elevated.

These conditions, with a general material prosperity, make the farmers, the farmers' homes, and the farmers' families of Massachusetts the peers of any people of the same occupation on the face of the earth; and they stand a record evidence against the unsustained and unsustainable assertion that there is a decline in the agriculture of Massachusetts.

All reports were referred to the Committee on Printing, with full powers.

All unfinished business was referred to the Executive Committee, with full powers.

The Board then adjourned *sine die.*

The various papers and essays herein printed have been prepared by their authors, at my request, especially for this volume.

The labor and care bestowed upon them merit the gratitude of the farmers of the Commonwealth. It is by such thought and research that the science of agriculture is advanced, and the labors of the husbandman lightened and encouraged.

JOHN E. RUSSELL,
Secretary of the State Board of Agriculture.

BOSTON, January, 1882.

THE FINANCES OF THE SOCIETIES.

FINANCES OF THE SOCIETIES.

SOCIETIES.	Amount received from the Commonwealth.	Income from permanent fund.	New members and and donations.	All other sources.	Receipts for the year.	Premiums offered.	Premiums and gratuities paid.	Current expenses for the year, not including premiums and gratuities.	Disbursements for the year.	Indebtedness.	Value of real estate.	Value of personal estate.	Permanent fund.
Massachusetts	-	-	-	-	-	-	-	-	-	-	-	-	$77,002 47
Essex	$600 00	$1,417 67	$205 75	$2,340 80	$4,564 22	$2,910 00	$1,765 00	$2,660 81	$4,494 81	-	$6,000 00	$17,600 00	23,600 00
Middlesex[1]	1,200 00	-	271 60	2,210 40	3,682 00	2,059 50	912 95	2,747 28	3,428 03	$17,720 00	25,000 00	300 00	3,000 00
Middlesex North	600 00	429 10	97 00	729 87	1,855 97	1,182 00	808 50	1,084 52	1,893 02	1,200 00	20,000 00	-	20,000 00
Middlesex South	600 00	-	142 80	1,670 10	2,412 90	884 50	339 25	2,039 40	2,377 57	12,000 00	18,000 00	-	18,000 00
Worcester	600 00	594 00	35 00	1,170 00	2,399 00	9,000 00	7,500 00	2,399 00	10,000 00	37,000 00	100,000 00	5,000 00	63,000 00
Worcester West	600 00	-	50 00	1,351 66	2,001 66	1,393 75	1,118 55	657 64	2,141 26	1,494 93	11,600 00	750 00	11,600 00
Worcester North	-	-	-	-	-	-	-	-	-	-	-	-	-
Worcester No.-west,	600 00	-	102 50	2,357 62	3,060 12	1,686 75	1,102 30	1,384 85	3,087 15	6,525 00	12,500 00	1,460 15	7,435 15
Worcester South	600 00	988 02	103 00	4,668 35	4,771 35	1,834 00	1,483 20	1,572 85	4,795 00	1,000 00	13,500 00	1,000 00	-
Hampshire, Franklin, and Hampden	600 00	98 50	178 00	1,636 46	2,512 96	1,260 75	712 50	1,674 09	2,386 59	6,716 66	7,800 00	236 37	8,036 37
Hampshire	600 00	-	104 13	506 73	1,300 86	760 00	649 25	665 96	1,315 21	779 52	4,100 00	150 00	3,470 48
Highland	600 00	40 00	73 00	1,346 94	2,059 94	890 30	666 80	535 22	2,059 94	-	3,000 00	700 00	3,700 00
Hampden	600 00	-	10 00	721 06	1,331 06	1,591 25	587 32	773 56	1,360 88	-	-	-	-
Hampden East	600 00	-	99 94	745 68	1,445 62	1,049 00	836 05	830 99	1,667 04	-	5,000 00	-	5,000 00
Union	600 00	-	174 84	1,279 30	2,054 23	1,104 95	739 16	876 71	1,615 87	-	5,200 00	2,150 00	7,350 00
Franklin	600 00	110 00	105 00	1,438 17	2,253 17	819 25	749 50	657 58	2,301 00	1,000 00	10,000 00	1,400 00	11,400 00
Deerfield Valley	600 00	-	282 75	860 88	1,743 68	637 00	643 55	1,099 01	1,743 68	800 00	8,070 00	50 00	8,070 00
Berkshire	600 00	373 45	358 00	2,628 28	3,959 78	3,273 00	2,729 75	1,245 52	3,665 97	-	6,000 00	800 00	6,000 00
Hoosac Valley	600 00	-	333 00	2,809 35	3,742 35	1,567 50	1,238 85	1,136 97	3,568 47	4,500 00	12,500 00	450 00	-

Housatonic . .	600 00	30 37	205 67	4,934 05	5,760 59	3,585 00	2,928 00	3,076 61	6,004 61	-	8,500 00	11,206 13	19,706 13
Bristol . . .	600 00	-	222 10	7,519 00	8,341 19	4,000 00	3,415 40	4,871 41	9,286 81	8,000 00	50,000 00	300 00	-
Plymouth . . .	600 00	225 00	1,771 00	4,659 62	7,255 62	3,115 00	2,426 15	4,296 51	6,722 66	7,467 04	43,000 00	2,000 00	-
Hingham . . .	600 00	-	167 00	2,098 38	2,865 38	1,252 75	582 35	2,027 08	2,909 43	2,800 00	16,000 00	2,000 00	15,200 00
Marshfield . . .	600 00	-	65 00	1,716 70	2,436 70	1,233 00	698 63	1,560 88	2,259 51	3,900 00	12,056 92	1,592 78	9,749 70
Barnstable . .	600 00	16 00	121 20	969 54	1,706 74	1,129 00	766 40	1,018 42	1,784 82	425 00	5,000 00	500 00	5,075 00
Nantucket . . .	600 00	40 00	22 00	396 70	436 70	1,173 00	580 96	455 25	941 06	588 00	3,200 00	200 00	2,612 00
Martha's Vineyard .	600 00	101 88	34 00	561 24	1,297 12	839 00	649 86	377 78	1,027 64	-	2,200 00	1,800 00	3,900 00
Amesbury and Salisbury . .	-	40 00	59 00	8 00	312 06	300 00	206 75	89 68	296 43	-	-	500 00	1,002 32
Worcester So.-east .	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals . . .	$16,200 00	$4,503 99	$5,393 28	$53,425 06	$77,562 87	$50,530 25	$36,836 48	$41,815 58	$85,134 41	$113,916 15	$408,226 92	$52,145 43	$333,909 62

¹ Years 1880 and 1881.

PERMANENT FUND,—HOW INVESTED.

Massachusetts.—In bank-stock, bonds, and mortgages.

Essex.—In real estate, bank-stock, United-States and other bonds, library, and exhibition fixtures.

Middlesex.—In land and buildings.

Middlesex North.—In land and buildings.

Middlesex South.—In land, buildings, sheds, stalls, pens, and track.

Worcester.—In real estate.

Worcester West.—In real estate and fixtures.

Worcester North-west.—In land, buildings, personal property, and $960.15 cash.

Worcester South.—In land, buildings, cattle-sheds, and track.

Hampshire, Franklin, and Hampden.—In real estate, personal property, and cash.

Hampshire.—In real estate.

Highland.—In real estate, savings-bank notes, and cash.

Hampden East.—In park, hall for exhibition, and cattle-pens.

Union.—In land and buildings, and $1,118.95 cash.

Franklin.—In land, buildings, and ten shares Franklin County bank-stock.

Deerfield Valley.—In real estate.

Berkshire.—In real estate.

Hoosac Valley.—In real estate and personal property.

Housatonic.—In real estate, personal property, notes of members, railroad bonds, and cash.

Bristol.—In real estate and personal property.

Plymouth.—In real estate, furniture and fixtures, and cash.

Hingham.—In land, buildings, furniture, and fixtures.

Marshfield.—In land, buildings, and personal property.

Barnstable.—In real estate and United-States bonds.

Nantucket.—In land and buildings.

Martha's Vineyard.—In land and buildings, and notes of members.

ANALYSIS OF PREMIUMS AND GRATUITIES AWARDED.

SOCIETIES.	Total am't offered for management and improvement of farms, orchards, etc.	Total amount paid for management and improvement of farms, orchards, etc.	For neat and dairy stock.	For horses.	For all other farm-stock.	Total amount offered for live-stock.	Total amount paid out for live-stock.	For cereals and seed.	For roots and vegetables.	Total amount offered for grain and root crops.	Total amount paid out for grain and root crops.	For fruits, flowers, etc.	For dairy-products.	For bread, honey, and preserved fruits, etc.	Total amount paid out under the head of farm-products.
Massachusetts .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Essex . . .	$335 00	$132 00	$472 00	$232 00	$155 50	$1,120 00	$805 00	$40 00	$138 00	$160 00	$40 00	$341 00	$53 00	$24 00	$806 00
Middlesex . .	159 00	46 00	122 00	85 00	152 50	849 00	359 50	2 00	71 00	122 00	73 00	168 00	-	42 00	283 50
Middlesex North,	-	-	184 00	148 00	107 75	608 00	415 50	17 50	55 00	141 00	111 00	195 25	13 00	59 00	393 00
Middlesex South,	81 00	36 00	105 00	56 00	74 00	449 00	185 00	8 50	13 00	129 75	21 50	41 10	6 00	4 00	94 05
Worcester . .	-	-	1,448 00	463 00	175 00	4,591 00	2,086 00	44 00	28 00	180 00	60 00	384 00	45 00	36 00	-
Worcester West,	80 00	15 00	282 50	118 00	71 50	523 00	475 00	3 50	11 50	62 50	14 50	38 75	29 00	12 00	171 75
Worcester North,	24 25	24 25	138 50	67 50	59 50	421 00	219 50	37 00	13 75	50 50	49 75	96 25	14 50	20 00	163 50
Worcester N.-W.	22 00	20 00	219 00	124 00	106 75	796 75	415 81	51 00	21 00	110 00	71 66	47 50	15 00	12 00	140 15
Worcester South,	100 00	-	268 00	646 00	59 10	1,339 00	1,119 10	27 00	15 75	117 00	117 00	60 25	32 00	23 00	218 75
Hampshire, Franklin, and Hampden	56 00	18 00	208 00	183 00	150 00	591 00	465 00	151 00	58 00	238 00	95 50	56 25	36 00	18 00	188 00
Hampshire . .	-	-	121 00	137 00	129 00	431 00	387 00	33 00	65 00	114 00	98 00	73 00	8 50	11 50	191 00
Highland . .	90 00	80 00	165 75	182 00	68 00	531 25	365 75	13 50	20 50	38 00	84 00	17 00	20 50	6 30	77 50

Hampden . .	180 00	9 50	126 00	89 00	114 00	791 50	209 50	14 50	9 00	87 75	12 89	74 75	5 00	14 50	67 91
Hampden East .	119 00	20 00	54 00	99 00	85 00	470 00	838 50	21 50	19 25	77 00	42 00	49 00	12 75	8 00	109 75
Union . . .	16 00	4 50	168 00	114 00	159 00	550 00	433 75	19 00	16 75	56 00	31 50	22 65	15 50	7 00	78 15
Franklin . .	-	-	137 00	75 00	279 00	491 00	430 75	5 00	23 50	42 50	28 50	112 75	20 00	20 25	175 00
Deerfield Valley,	-	-	174 00	119 00	120 00	426 00	413 00	29 75	13 50	62 25	46 25	44 50	19 90	16 25	180 15
Berkshire . .	141 00	185 00	416 00	231 00	295 00	1,296 00	941 00	212 00	132 00	302 00	282 00	141 00	53 00	45 50	583 50
Hoosac Valley .	60 00	50 00	121 00	177 00	222 00	656 00	518 00	138 50	71 25	247 00	209 75	87 75	48 50	46 00	392 00
Housatonic . .	228 00	200 00	461 00	236 00	294 00	1,901 00	1,428 00	412 00	131 00	598 00	572 00	207 00	63 00	61 00	903 00
Bristol . . .	215 00	113 00	509 00	184 00	222 50	1,550 50	900 00	19 00	71 25	260 00	76 25	139 00	30 00	19 75	279 00
Plymouth . .	-	-	437 36	153 00	193 00	955 00	686 36	86 00	81 00	144 00	144 00	115 00	55 00	144 50	-
Hingham . .	134 00	20 00	127 00	51 00	115 65	639 25	293 65	-	26 00	139 00	26 00	111 40	6 50	23 20	167 10
Marshfield . .	123 00	33 00	202 00	64 50	81 00	426 50	347 50	28 00	55 75	94 00	83 00	126 15	23 00	19 65	252 65
Barnstable . .	156 00	39 00	122 00	40 00	138 25	310 00	300 25	-	49 50	197 00	49 50	83 25	15 00	27 00	174 75
Nantucket . .	51 00	-	160 50	86 00	46 25	587 00	274 75	23 00	34 70	111 00	23 00	40 00	9 00	9 00	119 85
Martha's Viney'd,	48 00	10 00	112 00	59 00	123 50	381 00	294 50	51 50	54 50	165 00	82 00	44 00	9 00	28 25	163 25
Amesbury and Salisbury	-	-	-	-	2 50	-	-	12 00	34 50	-	-	84 75	1 00	5 50	137 75
Worcester S.-E. .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals . .	$2,418 25	$1,005 25	$7,060 61	$4,119 00	$3,759 25	$23,680 75	$15,107 67	$1,499 75	$1,333 45	$3,995 25	$2,494 55	$3,001 30	$658 65	$763 15	$6,511 31

ANALYSIS OF PREMIUMS AND GRATUITIES AWARDED. — *Concluded.*

MISCELLANEOUS.

SOCIETIES.	For agricultural implements.	Offered for raising forest-trees.	For experiments on manures.	Amounts awarded for objects strictly agricultural not already specified.	Amount awarded and paid out for trotting-horses.	For objects not strictly agricultural: domestic manufactures.	Number of persons who received premiums and gratuities.
Massachusetts . .	-	-	-	-	-	-	-
Essex	$60 00	$30 00	$25 00	-	-	$204 50	$587 00
Middlesex . . .	34 00	50 00	-	-	$500 00	116 50	137 00
Middlesex North . .	-	-	-	-	-	1 50	136 00
Middlesex South . .	7 50	45 00	-	-	250 00	50 75	123 00
Worcester . . .	87 00	-	-	-	1,450 00	538 50	357 00
Worcester West . .	-	30 00	10 00	-	459 00	-	213 00
Worcester North . .	13 75	25 00	-	-	66 00	174 50	268 00
Worcester North-west .	3 00	30 00	-	-	495 00	54 15	198 00
Worcester South . .	50	35 00	-	-	490 00	16 00	165 00
Hampshire, Franklin, and Hampden .	17 00	20 00	-	-	454 00	73 75	174 00
Hampshire . . .	-	16 00	-	-	155 00	71 25	154 00
Highland . . .	2 00	-	-	-	85 00	106 25	208 00
Hampden . . .	22 00	30 00	15 00	-	235 00	64 00	127 00
Hampden East . .	17 00	25 00	-	-	300 00	50 80	148 00
Union	5 20	-	-	$6 95	128 00	94 20	215 00
Franklin	-	10 00	-	-	575 00	78 00	225 00
Deerfield Valley . .	-	-	-	-	-	50 40	271 00
Berkshire . . .	58 00	-	-	-	590 00	407 25	537 00
Hoosac Valley . .	17 00	-	10 00	24 25	630 00	237 10	281 00
Housatonic . . .	-	-	-	-	445 00	406 00	455 00
Bristol	49 00	23 00	60 00	-	1,514 00	461 90	440 00
Plymouth . . .	22 00	60 00	-	18 00	852 00	212 29	438 00
Hingham . . .	3 00	50 00	5 00	-	-	93 60	276 00
Marshfield . . .	-	50 00	-	-	164 00	122 02	460 00
Barnstable . . .	-	7 00	-	-	85 00	167 40	249 00
Nantucket . . .	-	13 00	-	-	-	92 62	250 00
Martha's Vineyard .	-	11 00	10 00	-	-	176 11	175 00
Amesbury and Salisbury . . .	7 00	10 00	-	-	-	-	70 00
Worcester South-east .	-	-	-	-	-	-	-
Totals . . .	$424 95	$570 00	$135 00	$49 20	$9,872 00	$4,121 34	$7,337 00

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AGRICULTURAL EXHIBITIONS, 1882.

ESSEX, at *Haverhill*, Sept. 26 and 27.
MIDDLESEX, at *Concord*, Sept. 26, 27, and 28.
MIDDLESEX NORTH, at *Lowell*, Sept. 26 and 27.
MIDDLESEX SOUTH, at *Framingham*, Sept. 19 and 20.
WORCESTER, at *Worcester*, Sept. 5, 6, 7, and 8.
WORCESTER WEST, at *Barre*, Sept. 28 and 29.
WORCESTER NORTH, at *Fitchburg*, Sept 26, and 27.
WORCESTER NORTH-WEST, at *Athol*, Oct. 3 and 4.
WORCESTER SOUTH, at *Sturbridge*, Sept. 14 and 15.
WORCESTER SOUTH-EAST, at *Milford*, Sept. 26, 27, and 28.
HAMPSHIRE, FRANKLIN, and HAMPDEN, at *Northampton*, Oct. 4, 5, and 6.
HAMPSHIRE, at *Amherst*, Sept. 21 and 22.
HIGHLAND, at *Middlefield*, Sept. 14 and 15.
HAMPDEN, at *Holyoke*, Sept. 26, 27, and 28.
HAMPDEN EAST, at *Palmer*, Sept. 19 and 20.
UNION, at *Blandford*, Sept. 20, 21, and 22.
FRANKLIN, at *Greenfield*, Sept 28 and 29.
DEERFIELD VALLEY, at *Charlemont*, Sept. 21 and 22.
BERKSHIRE, at *Pittsfield*, Oct. 3, 4, and 5.
HOOSAC VALLEY, at *North Adams*, Sept. 19 and 20.
HOUSATONIC, at *Great Barrington*, Sept. 27, 28, and 29.
BRISTOL, at *Taunton*, Sept. 26, 27, and 28.
PLYMOUTH, at *Bridgewater*, Sept. 20, 21, and 22.
HINGHAM, at *Hingham*, Sept. 12 and 13.
MARSHFIELD, at *Marshfield*, Sept. 13, 14, and 15.
BARNSTABLE, at *Barnstable*, Sept. 26 and 27.
NANTUCKET, at *Nantucket*, Sept. 6 and 7.
MARTHA'S VINEYARD, at *West Tisbury*, Oct. 3 and 4.
AMESBURY and SALISBURY, at *Amesbury*, Sept. 21 and 22.

APPENDIX.

APPENDIX.

I.

THE CULTURE OF CORN.

BY J. B. LAWES, LL.D., F.R.S.

The Eighth Annual Report of the New Jersey State Board of Agriculture contains a paper by Mr. Henry Stewart, upon a subject which has occupied my attention for a great number of years, and which is now coming to the front as a great question of economy in commercial agriculture. It may be described briefly as "Freight *versus* Artificial Fertility."

Mr. Stewart says, "It has been the fashion to believe, or at least to say, that the farms in the eastern parts of the country are exhausted, that agriculture here is in danger of ruinous competition from the newer lands of the West, and that it is cheaper to buy Western corn than to grow it in the East." And he goes on to "show the fallacy of such an idea as this" by the following figures:—

	Cents.
Freight on a bushel of corn from Chicago to New York . . .	30
Cost of fertilizer to produce a bushel of corn	9

The question here raised is not only one of importance with reference to the East and West of the United States, but also as regards the United States and Great Britain; for, though it is true that we do not grow corn, it is also true that our wheat is gradually being displaced by the cheaper-grown wheat of the States.

Mr. Stewart goes on to say, "Recent investigation and past experience have shown, that while wheat requires from one-half to full quantity of all the nitrogen to be supplied in a fertilizer, depending upon condition of the soil, corn, on the contrary, requires, even on comparatively poor soils, only about one-fourth the nitrogen to be supplied, as compared to what the crop contains."

It would be very joyful news to our farmers in Great Britain, if I could assure them that wheat requires only "from one-half to full quantity of all the nitrogen" contained in the crop to be applied in manure, or, in other words, that by the application, at the most, of one pound of nitrogen in manure, a pound could be recovered in the produce. So far, however, from my being able to accept this statement, I feel no hesitation in saying that whatever may be the nature of the "recent experiments and past experience" to which Mr. Stewart refers, if they assert, as a general agricultural fact, that the application of half a pound to a pound of nitrogen in manure will produce one pound of nitrogen in a crop of wheat, or that a quarter of a pound of nitrogen in manure will produce one pound of it in corn, they are based upon error. The only manner in which such a result might possibly be arrived at would be by the continuous growth of wheat or corn by means (1) of a mineral manure alone, and (2) by the same manure combined with salts of ammonia, if this were done with very great care, and for a sufficiently long period; although I should even then expect more than a pound of nitrogen would be required to produce one pound of that substance in increased growth, and that more nitrogen would be recovered by the corn than by the wheat.

Mr. Stewart says, further, that Charles V. Mapes is opposed to my idea that corn should be placed in the list of grain-crops which require to be supplied with a surplus of nitrogen, but has insisted that it should be classed with clover and the leguminous crops, which yield larger quantities of nitrogen in their product, but require a very inconsiderable supply.

The statement that corn yields large quantities of nitrogen, like the leguminous crops, is somewhat inconsistent with the table given by Mr. Stewart on page 46 of the report, which shows that corn contains, not only less nitrogen than the leguminous crops, but even less nitrogen than wheat. My object, however, is not to find fault with Mr. Stewart's statements, but to endeavor to correct what I consider to be erroneous in them.

First, then, with regard to corn. That it is a graminaceous plant, and possesses all the properties of that order, I have not a shadow of doubt. All the plants containing large quantities of silica in the ash possess properties in common, one of which is, that, when liberally supplied with nitrogen, they are capable of outgrowing and overpowering all other species of plants. It is quite true that corn is less dependent upon an artificial supply of nitrogen than wheat, oats, or barley, and the reason for this fact I have frequently pointed out: viz., that, after the other crops are ripe, corn continues its growth during the exact period when the liberation of nitric acid in the soil is most active; and it is this circumstance that enables the United-States farmer to sell corn so much cheaper than wheat.

At Rothamsted we have abundance of evidence to show how large is the quantity of nitric acid liberated during the summer months. For example: the water collected from the drains of our experimental wheat-field in July contained no nitric acid; while the soil of the adjoining field, where no crop was grown, contained in September as much nitric acid as would have supplied the nitrogen contained in fifty bushels of corn. The United-States farmers are now embarking largely in the use of artificial manures, and therefore may possibly be glad to hear the views of one who has been studying their properties for more than forty years.

First, they will find a very great difference between the amount of ingredients which is supplied in a manure and that obtained in the produce; then two of the ingredients generally supplied in manure — viz., phosphoric acid and potash — enter into very fixed compounds with the soil, and are only recovered over long periods of time. In confirmation of this fact, I may say, that, at Rothamsted, we are at the present moment taking up in our wheat-crop phosphoric acid and potash which were applied thirty years ago. Some considerable addition, therefore, in the shape of interest, must be charged on the cost-price of these substances by the farmer who employs them as a manure. With regard to nitrogen the case is different. It appears probable that nitrogen, applied either as ammonia or nitric acid, does not permanently enter into any fixed combination in the soil, unless it has become a part of living vegetation.

And it may be considered an established fact, that, wherever nitrogen is used as a manure, there will be a considerable loss of the amount applied, although the amount of such loss will vary with the seasons and other causes at present unknown. In consequence of the severe competition to which the British farmer is now exposed, the question of artificial fertility has recently been occupying my attention; and I have come to the conclusion, that, as artificial manures can be purchased quite as cheaply in this country as in the United States, the crop grown by their aid cannot be produced more cheaply in one country than in the other. What we are suffering from in Great Britain is the competition of crops grown by means of natural fertility, which is cheaper than the fertility that can be supplied in any other form. The views of Mr. George Ville with regard to the sources of nitrogen, and the properties possessed by the various crops for gathering it from the atmosphere, appear to have found much favor in some parts of the United States. We have not thought it necessary to bring forward any formal evidence to disprove these views; but I may say, that, as expressed by Mr. Ville, they are entirely opposed to the facts that have been established by the result of the experiments at Rothamsted.

THE CULTURE OF CORN.

MR. H. STEWART'S REPLY TO DR. J. B. LAWES OF ROTHAMSTED.

When I complied with the request of the secretary of the New Jersey State Board of Agriculture to give him my views upon the culture of corn, for publication in the Annual Report of the Board, I little expected that it would bring me into conflict with the world-renowned agricultural chemist and experimenter, Dr. J. B. Lawes. But that I feel some confidence in the truth of my views, and perceive from my point of view that they do not conflict very much, if at all, with those of Dr. Lawes, and that he may, perhaps, miss some important element in this question through want of familiarity with this especially American crop, under its special characteristics in American fields, and under some special conditions, I should scarcely care to discuss this question under the certain disadvantages which Dr. Lawes's greatly superior position throws upon me. I would take this opportunity of acknowledging very gratefully the obligations under which, in common with the many American admirers and students of the doctor, I have been placed for the fund of information derived from his elaborate experiments and his life's work. We can never too highly appreciate the services he has conferred upon American agriculture; and I am not without some hope that perhaps we in America may some day be able to add something to the great mass of information which has been gathered up at Rothamsted, through our investigations here, under somewhat different circumstances of climate, soil, and crops.

On careful study of Dr. Lawes's communication (see "Rural New-Yorker" of July 2), I must confess that I fail to see any serious point of difference between his views and mine in regard to this question. I don't wish to discuss it in regard to wheat, because I have not given so much attention to wheat-growing as to corn-growing, and confess, that, so far as regards the former crop, I have not yet been able to produce it here so cheaply as I could buy the Western grain; and I doubt very much if we Eastern farmers can compete in wheat production with the West any better than the English farmers can. But I would like to say, that I do not think it depends altogether upon the supply of nitrogen in the soil; that it is not so much a question of fertility as of cheapness of culture. Here in the East our lands cost too much, and our farms are not large enough for the use of the labor-saving implements and machines; so that the cost of a crop of even forty bushels of wheat per acre is not repaid by the price fixed by the cost of the smaller crop of eighteen or twenty bushels grown in Minnesota or Dakota. The very same difficulty exists in England as regards this crop, but with regard to corn this difficulty is greatly lessened. Corn cannot be grown and harvested as cheaply as wheat in the West. The Western corn must be cut and shocked and husked by hand, and at the same cost as in the East; so that the relative disability of the Eastern farmer is not so great as in the case of wheat. It is therefore wholly a question of fertility with corn; while the element of labor enters into the question as regards wheat, to the greater detriment of the Eastern-American and the English farmer. Then, if the cost of the artificial fertilizer required to produce a bushel of corn in New Jersey is less than the freight on it from Chicago, I hope to be able to compete successfully with the Iowa and Illinois farmer in growing corn. It rests wholly on this point; and, in my paper referred to by Dr. Lawes, I made this my chief point.

My experience in this respect has been limited to a few years, during which I have been growing corn repeatedly with artificial manures. I am not in a position to say how much nitrogen is naturally contained in my soil, which is poor, and had been badly farmed by former owners; but I suspect it is very little. The nearest approach to a knowledge in this respect is the fact, that on part of a field planted with corn, and left without any manure or fertilizer, the crop produced did not bear one sound ear: there were some small stalks and poor nubbins, but not one good ear, on a strip four rods wide through the field. This field (two acres), manured with six hundred pounds of the Mapes corn-manure (containing twenty-three pounds and a half of nitrogen) per acre, gave me ninety-eight bushels of shelled corn containing about eighty-eight pounds of nitrogen per acre. A plot of one-sixth of an acre in another field, manured in precisely the same manner, gave twenty-five bushels and eight pounds of shelled corn, equivalent to a hundred and fifty and six-sevenths bushels per acre. Here was presented a serious problem, and one upon which, it may be easily perceived, depends a most important sequence for the Eastern farmers, who are confronted with a harassing, if not ruinous competition with Western farmers. This, with some repeated crops, not grown experimentally, but in ordinary farm-work, make up the sum of my personal experience.

With this there are many similar experiences of others, reference to which may, perhaps, go no farther than the crops grown on the Rural Farm, a large number of experiments collated by Professor Atwater, and several competitive crops grown by farmers and farmers' boys. These all showed a large product grown, while some of them showed a seriously injurious effect from an excess of nitrogenous manures. Now, there seems to be but one explanation for these facts; and that is, that corn is able to avail itself of a supply of nitrogen from some occult source, when it is sufficiently provided with potash and phosphoric acid. What this source is, I do not attempt now to question. The corn gets the nitrogen, that seems certain: and I infer from Dr.

Lawes's communication, in the "Rural New-Yorker" of July 2, that he and I do not differ in the least as regards this bare fact; for he says, "The only manner in which such a result — viz., that a quarter of a pound of nitrogen in manure will produce a pound of it in corn — might possibly be arrived at would be by the continuous growth of corn by means (1) of a mineral manure alone, and (2) by the same manure combined with salts of ammonia, if this were done with very great care and for a sufficiently long period." Further he says, "More nitrogen would be recovered by the corn than by the wheat."

Now, if I have said any more than what this purports to mean, and Dr. Lawes will allow me, I will withdraw all beyond that, and rest my case upon it. That includes every point I wish to make; for the whole sum of my argument is, that the Eastern farmer, by the perfectly right employment of a quarter of a pound of nitrogen, can recover one pound of it in his corn-crop, if he will only give enough potash and phosphoric acid. In discussing the question of the culture of corn in my paper, I considered it solely in its practical bearings, and did not give much attention to its relative character as compared with clover. But if the above admission of Dr. Lawes is correctly quoted, it certainly seems that it must also be admitted that "corn should not be placed on the list of grain-crops which require to be supplied with a surplus of nitrogen, but rather classed with clover and the leguminous crops, which yield larger quantities of nitrogen in their product, but require an inconsiderable supply." And why not? Consider the season of growth and of the maturity of corn. It occupies a period of the year marked by numerous thunder-showers and a torrid temperature, when the production of nitric acid is known to be greatly in excess of that at any other season, and probably, if not certainly, greater than the product of the whole of the rest of the year; while wheat is mature and ready for harvest before the hot weather fairly begins. Corn, in fact, is a tropical plant, and cannot be justly compared with wheat, oats, and barley, which thrive in the cooler parts of the temperate zone, and is, therefore, as Dr. Lawes admits, "less dependent upon an artificial supply of nitrogen than wheat, oats, or barley." Now, wherein do we differ in respect to the character of corn as a gatherer of natural nitrogen? I have read with great care all that Dr. Lawes has written in criticism of my paper; but I leave it with the satisfaction of believing that Dr. Lawes really agrees with my views, or, I would rather say, that my views appear to be based on a true understanding of Dr. Lawes's teachings, to which I confess I am indebted for the most of my opinions and beliefs on this subject. I disclaim any desire to stand in the relation of a disputant with Dr. Lawes. I rather claim the relation of a disciple, and recognize him as my apostle and authority in this investigation, and shall rejoice if it may induce him to study still more closely the subject of American corn-culture, in connection with our peculiar climate, and our enforced necessity for mineral fertilizing, with continuous cropping to a great extent.

In conclusion, I would say that I am much pleased to have so favorable an opinion in regard to the permanence of mineral fertilizers from Dr. Lawes, when he says that "phosphoric acid and potash enter into fixed compounds with the soil, and are only recovered over long periods of time." American farmers can scarcely have any more encouraging evidence of the permanence of artificial fertilizers than the fact, that at Rothamsted the potash and phosphoric acid applied thirty years ago are still showing their effects upon the crops. In my attempts to grow corn continuously (and chiefly with artificial manures), I have already had evidence of the same fact; and if the most costly ingredient of these fertilizers, viz., nitrogen, is required only in the small proportion admitted by Dr. Lawes, I can see my way clearly to grow corn cheaper than I can buy it from Western farmers, and either feed it in my dairy, or dispose of it at a profit.

THE NITROGEN SUPPLY

J. B. LAWES, LL.D., F.R.S.

At Rothamsted, in the middle of May of the present year, I planted a few seeds of corn, which I had received from a gentleman living in Baltimore, upon that portion of my land which has grown a permanent wheat-crop for forty years without the application of any manure.

In the adjoining field, which is under experiment with permanent barley, potatoes, and leguminous crops, I planted about a hundred seeds, placing three together, and allowing them the space of a square yard or more from which to collect their food.

The plot of ground upon which they were planted is outside the portion of the field under experiment: it certainly has received no dung for the last thirty years, and may be described as a piece of waste land which has been ploughed with the rest of the field, but has not been cropped, though vegetation has sprung up principally in the form of thistles or annual weeds.

My object in sowing the corn was a very simple one: I wished to ascertain whether the color of the plant, under different foods, corresponded with that of the various cereal crops which we have under experiment.

At the period at which I am writing (Aug. 22) the corn upon the unmanured wheat-land is only one foot high: there is no leaf that is one inch in width, and the color is yellow, or a yellowish-green.

In the adjoining field some of the plants are between four and five feet high, while the leaves are three inches and a quarter wide, and. of a very dark, rich green: other plants, although growing and luxuriant, are much paler in color. In this field I have used mineral manures alone, and mineral manures with nitrates.

In the same field with the corn, and close to it, there are fifteen different sorts of leguminous crops growing: they are all manured with (1) various mineral manures alone, and (2) with the same minerals, and, in addition, nitrates or salts of ammonia.

Here we have no changes in the color of the plants due to the influence of the various manures: there are none of those varieties of tint, from a yellowish-green to a greenish-blue (which in the evening appears almost black), that we find in some of our graminaceous crops under experiment. A practised eye might detect, in some cases, a brighter and more healthy green; but that is all.

So far as the corn is concerned, by a comparison of the produce grown on the permanently unmanured land with that grown on the field supplied with minerals, and nitrates or salts of ammonia, it is evident that the plant has profited largely by the application of the manures. At the same time, while I think that corn, in common with the other cereal crops, is dependent upon a liberal supply of nitric acid *in the soil*, I must not, in saying this, be supposed to advocate its application artificially. I quite agree with Mr. Stewart in thinking that mineral manures alone should be used, or mineral manures with the addition of a small quantity of nitrogen, so long as they enable the farmer to grow a hundred bushels of corn, or even a much smaller crop than that, per acre.

The only difference between Mr. Stewart and myself is this: I think that it is to the soil, rather than to the atmosphere, that we must look for the supply of nitrogen; while Mr. Stewart's view is, that the poverty of his soil does not admit of so large a supply being yielded.

This question can only be set at rest by the continuous growth of corn under mineral manures alone; and, even under such circumstances, many years might elapse before satisfactory conclusions could be drawn. I have more than once, when writing upon American agriculture, pointed out the immense advantage which United-States farmers possess over ourselves and others who live in climates not suitable for the growth of cereal crops.

It is quite true that the United-States farmer is fully aware of this advantage, and does not require to have it pointed out by me; but, at the same time, I may possibly, by the aid of science, help him to understand why it is that he can grow a much larger crop of corn than he can of any of the other grain-crops, and further, when his land is more or less exhausted, why mineral manures will be more effectual when applied to the corn than when applied to other grain-crops.

At Rothamsted we are now engaged in writing upon the subject of rain-water and drainage; and in the "Journal of the Royal Agricultural Society," now being printed, will be found an account of the composition of rain-water passing through an uncropped soil.

I abstain from entering upon any question with regard to the *source* of the nitrogen which we find in our drainage-water, and will merely point out that it could not have been obtained from the atmosphere by plants, as the soil was kept free from vegetation.

II.

NINETEENTH ANNUAL REPORT OF THE MASSACHUSETTS AGRICULTURAL COLLEGE, JANUARY, 1882.

To his Excellency the Governor and the Honorable Council.

THE Trustees of the Massachusetts Agricultural College, in compliance with the provisions of law, herewith present their annual report. During the year they and their college officers have made the most strenuous efforts to continue and maintain the established system in all departments, and, considering the difficulties of the present situation, with a good degree of success. By assigning extra work to the professors, and keeping their salaries at the lowest point possible without losing their services; by refusing all appropriations for investigations and improvements on the estate; by con fining all our operations to those of imperative necessity, and the practice of rigid economy in these,—we have succeeded in keeping our expenses within our income, and making sundry needed repairs on the buildings. The work of the farm has been directed to ordinary crop operations, with the exception of ploughing and reseeding some portions of the pasture for the purpose of increasing the quantity and improving the quality of its grasses. The area in tillage was forty-seven acres: viz., Indian corn, twenty acres, yielding eighteen hundred bushels of ears and forty-five tons of fodder; rye, twelve acres, yielding a hundred and eighty bushels of grain and fifteen tons of straw; oats, eight acres, yielding four hundred bushels of grain and fourteen tons of straw; potatoes, four acres, yielding five hundred bushels; turnips, one acre, yielding four hundred bushels; and two acres in cabbage and other garden vegetables. Seventy-five acres were in grass, yielding a hundred and sixty tons of hay; twelve acres have been ploughed, and sown with winter rye for next year's crop; and forty acres were ploughed in the fall, to be cropped next year. The neat-stock at the present time is forty-three head, included in which are two pairs of large oxen, being stall-fed, and nineteen cows. There are ninety swine of the Berkshire breed. The herd of cattle has nearly doubled since its reduction in 1879, and is in good condition, with many choice animals. It has not been sufficiently large, since the time named, to consume the hay and fodder product of the farm, quite a large part of which has been sold, and a portion of the proceeds expended in purchasing stable-manure at the village, or commercial fertilizers. The receipts and expenditures for the farm, including the payment for student-labor, show a small balance in its favor.

Mr. D. H. Tillson, as farm-foreman, has discharged his difficult and responsible duties with great fidelity, and made unwearied efforts to command success. As usual, the horticultural department has been ably conducted by Professor Maynard. Its business is enlarging and becoming more important every year. The sale of flowers, bedding and potted plants, shrubs, ornamental trees, fruit-trees, and fruits, is quite large, aggregating, during the last season, about four thousand dollars. What may be called the business of this department is carried on at a profit, and would show a decided balance in its favor; but this balance is more than consumed in the support of the Durfee Plant-House, which is little but a show-house, returning small revenue, though of much interest to the public, and very valuable for study and instruction. For further information of this department, reference is made to the annexed report of Professor Maynard. During the past year there have been the following changes in our corps of instructors. Professor William B. Graves, who for six years occupied the chair of physics and mathematics, and discharged its duties with fidelity and success, resigned his position in August to take a situation at Phillips Academy in Andover; and the place has been temporarily filled by the employment of Professor Charles L. Harrington, whose course here has fully sustained his reputation as a successful and enthusiastic teacher. The detail period of three years of Lieut. Charles Morris, as instructor of military science and tactics, expired the 1st of September, and he returned to his regiment: the United-States Government detailed Lieut. Victor H. Bridgman to the place, and he has entered upon his duties in such a manner as to give bright promise of the greatest efficiency and success. These new men have apparently imbibed to the full of the Agricultural College enterprise, have harmonized perfectly with the previous members of the faculty, giving their sympathy and co-operation in all their trials and successes. Annexed is a report from each on the present condition and wants of their respective departments. The other members — Professors Goodell, Goessmann, and Maynard — have as usual put forth every effort to maintain the efficiency of their departments, the general *morale* of the college, and a high standard as an educational institution. Though the duties of the permanent members have been increased to a dangerous point since 1879, they have found it impossible to give instruction in all the branches required by the curriculum; and it has been necessary to employ specialists to take the courses in geology, zoölogy, and veterinary. There has been no material diminution in the number of students. At the opening of the college year, nineteen were received to the freshman class in the regular course, one as a special, and five for the post-graduate course. The students as a whole have availed themselves of their privileges, and performed their required duties with cheerfulness and alacrity, have respected the regulations of the college, been earnest in contributing to maintain its high character, and enthusiastic in supporting its distinctive features. The present winter they have originated and carried into successful operation a course of weekly evening lectures from specialists in the science and practice of agriculture, which the public are invited to attend, and which cannot fail of being highly beneficial. The anniversary exercises were of a superior order. They were attended by his Excellency the Governor, and staff, by the members of the Board of Agriculture, the friends of the college and graduates, many of the alumni, and more generally than usual by the public. It is evident that these exercises are yearly attracting more and more attention, that the circle of their influence is enlarging, and that the agricultural portion of the community are coming to consider the Commencement exercises of the college an occasion of great import. The Farnsworth prizes for excellence in declamation were awarded, — the gold medals, to Charles T. Conger of New York of the sophomore class, and George Cutler, jun., of Amherst of the freshman class; the silver medals, to Homer J. Wheeler of Boston of the sophomore class, and Elisha A. Jones of Rockville, Mass., of the freshman class. The Grinnell prizes to the graduating class, for the best written and oral examinations in agriculture, were awarded, — the first, of fifty dollars, to Henry W.

Wilcox of Nawiliwili, S.I.; and the second, of thirty dollars, to Austin Peters of Boston. The graduating class numbered nineteen, who, having completed the required course of study and examinations, received the degree of Bachelor of Science; and seven of the number, who were matriculants of the Boston University, received the diplomas of that institution. A valuable addition has been recently made to the natural-history cabinet of the college by a donation from Winfred A. Stearns, a young naturalist of Amherst. It consists of many thousand specimens in the departments of mineralogy, entomology, and conchology, and a large collection of the nests and eggs of the birds of New England. Want of room and cases have seriously interfered with its arrangement in suitable order for exhibition and study; but yet it is a great acquisition to this department. For want of means the improvements of the year on the land or buildings have been few, and those more in the direction of preserving what we have from unavoidable decay and deterioration than of changes for permanent improvement. On the farm, work in gradually developing the arranged system of drainage, and breaking up and subduing the uncultivated land near the western boundary, was discontinued in the fall of 1879, and has not been renewed; but, as already stated, fourteen acres of the pasture, which was becoming infested with small shrubs and coarse grasses, have been ploughed and reseeded, and there has been much grading and reseeding done near the L. D. Cowles homestead. The Durfee Plant-House, which was getting seriously out of repair by the settling of the arches of the roof, and the decay of the sills, the floors, and benches, has been repaired by lifting the arches, and supporting them with iron standards, putting down new floors, benches, and shelves, and painting the entire structure inside and out; the whole cost of which has been more than six hundred dollars. At an early day it will require further repairs on the foundations, sills, and walls of the propagating-pits. By act of the last Legislature, the Massachusetts Central Railroad was granted the right of way to cross the College Farm; and the surveys have been made, and the permanent line definitely located. The line runs from the south farm-bound in a north-west direction on a long curve, through the full width of the estate, about thirty rods west of the college buildings and farm-barn, and between the latter and the pastures. The road does not come at grade with the surface to any extent, but consists of cuts and fills, and will be a serious disarrangement of our system of field-plotting, will cause no little inconvenience in the management and care of the farm-stock, and the general operations of carrying on the west half of the farm. The land-damages have not been adjusted, though propositions have been made by both parties. It is believed that a settlement will soon be made, and reasonable compensation given (direct and indirect) in money and privileges; but it must result in a lasting injury to the estate.

When the Commonwealth received the endowment fund of the college from the United States, it was stipulated in the compact that the State should provide all the buildings needed by the institution, and keep them in repair, without using any of the fund, or the income thereof, for that purpose. In 1867 and 1868 funds were provided by the State and the town of Amherst for the erection of such structures as were deemed necessary. Some of them were built rapidly to meet existing emergencies; and thirteen years' use, and perhaps, in some cases, the original employment of improper material and poor workmanship, have caused much deterioration and need of repair. The State having made no provision for such necessities, the trustees, to prevent serious losses, have deemed it their duty, during the last two years, to expend sixteen hundred dollars for this purpose from their general income. The money thus expended was greatly needed by the different educational departments; and nothing but the imperative necessities of the case could justify its employment in this manner. Similar work is still needed; and we respectfully suggest to the consideration of the Legislature whether the spirit or letter of the compact with the General Government can be complied with, only by the State assuming this obligation, and employing the income exclusively for educational purposes.

WANTS OF THE INSTITUTION.

As the law required military tactics and drill to be taught in the college, it was deemed best, that, so far as possible, this instruction should be given in the winter months, when the students could not have full employment on the farm; and, as winter drill in the field was impracticable, a drill-hall was provided in the third or attic story of the laboratory building. But the marching and evolutions of the battalion, continued for ten years, have so strained and weakened the structure, as to create serious apprehension of its complete ruin: therefore, for three years, its use for this purpose has been discontinued, and the winter drill, so important in the general system, has been practically abandoned. Estimates were made, by a practical builder, of the cost of such repairs and supports as were considered necessary to make the structure secure and safe to the battalion; but it has been beyond our power to make the necessary repairs and improvements. The agricultural department has always suffered for want of proper accommodations and appliances, and for apparatus and objects for lecture instruction. To make it thoroughly effective and useful, the professor should have an ample lecture-room, with cabinet-rooms adjoining, where specimen-crops, tools, implements, and farm machines and appliances in all its departments, could be collected and arranged for use before his classes, and for private study. Such a cabinet would cost no money, but would be of incalculable advantage to the students, and a place of resort and instruction to the farmers of the State. A suitable building could be erected for fifteen thousand dollars; and on the earth in its basement a military drill-room could be provided, for winter and stormy weather, which would be convenient, and beyond the possibility of injury by the marching and evolutions of the cadets. By this method the expense of repairs on the present hall would be avoided; and it could be used for other college purposes, and the suffering want of the agricultural department supplied. Repairs and refitting are needed at the boarding-house; and the kitchen and dining-room furniture, which has been in constant use fourteen years, should be replaced by new. The library is far from being what is needed, either in the number of its volumes or its departments; and it is thus, not because the trustees do not appreciate the great value of books to both instructors and students, but because of their inability to replenish it from year to year with new and standard works for culture, reference, and instruction. When the college was opened, the trustees of Amherst College kindly offered the use of their extensive and valuable library to our students and faculty on the same conditions as to their own. This generous offer has been availed of quite freely, and its advantages highly prized; but there is an extensive line of works specially needed, and adapted to the wants of the students of the Agricultural College, which are not found there, and its distance is such as to make its use a great inconvenience. Some means should be provided for making regular additions to the college library, and a suitable room for its keeping; and the college will be far from having its necessary equipment until this is done. We thus express our views of the wants of the institution committed to our care, with the feeling that it is doubtful if the general public, or even the Legislature, fully appreciate the magnitude of the enterprise, or the skill, intelligence, and means necessary to carry it forward successfully, or in a manner creditable to the State. As was intended by its founders, the college is an educational institution, with its distinct departments, apparatus, cabinets, and instructors, like other New-England colleges, but with the addition of technical courses relating to the theory and practice of agriculture, and other industrial arts, to make which efficient and useful requires of its trustees the same executive care and oversight in all details, the same financial provisions, and the same responsibilities in kind and extent, as are required of the trustees of other colleges. The farm is a very large one, with its buildings, stock, tools, teams, crops, and business operations of all kinds, like other large farms, and, owing to the peculiar circumstances of its connections and objects, requires more than ordinary care, foresight, and responsibility. The horticultural department, with its conservatories, nurseries, fruiteries, and landscape-gardening areas, is a business operation of no small magnitude. Each of these divisions of the enterprise is indispensable as a part of the general system of the institution; and each, from a business stand-point, is of sufficient size and importance to monopolize the time and thought of an able board of direction, the skill and energy of the best executive talent; and the whole and each is enlarged and complicated by the necessity of making each contribute to the technical education of the students. In addition to this, there is a somewhat pronounced public opinion that constant effort should be made, and expenses incurred, for the benefit of the general agriculture of the State, by carrying forward investigations to demonstrate and establish principles of practical importance. If the entire institution consisted of the college proper, with the indispensable professorships supplied with the necessary appliances and apparatus to make the instruction what it should be, the present income of the college would be inadequate to its proper support; and, as the farm and horticultural departments must be used to a greater or less extent to give technical education to students, they cannot be relied upon to contribute to this purpose. Our efforts the last two years to bring the college to the highest efficiency having convinced us of its impossibility, with only its present income, it was thought desirable to institute measures to increase the endowment fund to such an amount as is required to yield an ample and reliable revenue. Therefore a joint convention to consider the subject, consisting of his Excellency the Governor, and Executive Council, the Board of Trustees, and the Board of Agriculture, was held at the college on the 22d of last June.

Gov. Long acted as president of the convention, and called upon Hon. Daniel Needham of the Board of Trustees to make statements showing the condition and wants of the college, and the reasons for calling the convention. In response, Col. Needham passed in rapid review the history of the agricultural colleges of Europe, and the great benefit resulting therefrom; the early efforts to establish them in this country, alluding in particular to the commission given by the State of Massachusetts in 1851 to Dr. Hitchcock, to examine the agricultural schools of England, France, and Germany, and his report thereon to the Legislature. He traced with some detail the subsequent efforts to establish agricultural schools in several of the States, and the gradual and decided change in public opinion in their favor until about 1860, which reads as follows: —

"Hon. Justin S. Morrill of Vermont, then a member of the House of Representatives, brought the matter again before Congress. It was discussed from time to time — now prostrated by defeat, and again bidding fair promise of success — until 1862, when the Act upon which the present Agricultural College is based was passed by both Houses of Congress, received the signature of the President, and became a law.

"As is well known, the law provided grants of lands, proportioned to the population in the several States, as a fund for the support of agricultural colleges. Among the provisions of the Act, was one that military tactics should be taught in the college. I think this has been one of the most difficult obstacles we have had to overcome. The people have found it difficult to see the connection between agriculture and military tactics. Many a severe jest has been made, based upon the provisions of this requirement. But the provision is in the law, and we cannot go back of it. It is no fault of the State that it is there; it is no fault of the trustees that it is there: and perhaps, as we are a nation of citizen soldiers, keeping no standing army, and forever dependent upon the citizens in case of rebellion or invasion from a foreign foe, it is well that the requirement is made; for, without a soldier's education, the American citizen cannot perform the full duties of citizenship.

"In 1863 the Massachusetts Legislature considered the Act providing for the establishment of colleges in the several States. It was discussed in committee, and reported favorably. It was discussed in the House and Senate, — discussed carefully in detail, every objection was considered and weighed and overcome; and the bill making provision for the Massachusetts Agricultural College was passed by both Houses of the Legislature, received the signature of the Governor, and became the law of the State. The bill, fully, unequivocally, and unreservedly, accepted the national bounty and the terms of the congressional Act. The State accepted the contract. If it was a mistake, it is now too late to rectify it. The Legislature and the executive head of the State entered into a solemn and deliberate contract with the Nation. That responsibility once accepted was accepted for all time. Massachusetts will not go back of her contracts: she is no repudiator. She cannot shift this college off to other shoulders. She cannot make it a part of another institution: it is an independent organization, — chartered and created for independent work; and the time to regret it has long since passed.

"In the bill accepting the grant, a Board of Trustees was elected by both branches of the Legislature. The gentlemen elected were carefully selected, and were elected without their request or solicitation. They accepted the responsibility: it was a great one, for an agricultural college was a new thing, an experiment, in Massachusetts. It had older and richer institutions to compete with, it had prejudice from the people to combat, it had a plan to make and shape for which it had no precedent. The agricultural colleges established by despotic governments were no model for the college in the republic of America. So they felt their way — slowly, little by little — in great doubt, uncertainty, and darkness, seldom with great confidence, except in the fact that the principle was sound, the object good, and that in the end the college would justify the act of its founders.

"The town of Amherst, in its recognition of the value of the institution, invited the trustees to locate it within its borders, and, as an inducement, offered seventy-five thousand dollars. After great deliberation the offer was accepted. In this liberal offer the people of Amherst had the right to expect that the college would be well maintained, and that both

State and trustees would see that no stone be left unturned to secure success.

"The college was not richly endowed, and the number of students was not large. For this reason poverty met the trustees at every turn, — in the compensation of professors, in the management of the farm, in the erection of houses for the faculty: but this poverty was no fault of the trustees; they had not agreed, neither could it be expected, that they would furnish money from their own pockets to make good deficits that might occur. So from time to time appeals were made to the Legislature, to which every year a full report of the management and condition was made by the trustees.

"By and by legislators grew weary of these annual or bi-annual calls. The press took up the complaint. Denunciations of the college were in every-day editorials, and at times the public press seemed to be striving to see which could get the lead in its abusive attempts to set forth the uselessness of the State Agricultural College.

"In 1870, or thereabout, the Legislature made a change in the election of the members of the Board of Trustees. Theretofore elected by the Legislature, it was now provided that the board should be self-perpetuating, and in this way brought into harmony with all educational boards that had been chartered by the State. It was thought, too, that this change would relieve the State of the burden of the college, and that the new Act would shift responsibility.

"The trustees made no interference with the new action of the Legislature. They had not asked it; they did not oppose it: but, knowing the history of the college, they knew that State responsibility could not be thrown off. Acts might be passed, the statute-book might be covered with resolutions; but this great fact would remain the same. It was too late — too late. By solemn obligation and deliberation the responsibility had been assumed, the lands granted by the Government had been sold, the gift of the town of Amherst had been accepted, and there was nothing to be done except for the State to fulfil its part of the contract.

"The trustees under the new Act of legislation continued to struggle on. The press was against them, and many of the leading farmers of the State preferred to make them and the college the basis of a joke rather than give a word of encouragement.

"At last, determining to test the popular will, free scholarships were offered. That was three years since; and, to their delight, the college for the first time was filled. Then it was discovered that the people were beginning to appreciate the college, and that prejudice was giving way. But in another year it was found that the finances of the college would not justify free scholarships, and with deep regret the trustees were obliged to renew the former policy. The college classes relapsed into their former small numbers, and the taunt of a want of appreciation or absolute uselessness was revived by the press.

"But was it the fault of the trustees that the college was poor? Had it been for once only that they would be called upon to bridge over a deficit, or even twice, — and then they could have assurance that the college would move on with ease and certainty, — they would have gladly put their hands in their pockets, and made good the needed funds; but, if free scholarships were to be given the public, there would be no end to this demand, and therefore necessity compelled the change which was most reluctantly made.

"But one thing is now established, and established beyond question, — the farming public have yielded their prejudices, and the Agricultural College is recognized as one of the great means demanded by our advancing civilization. The only impediment now is our poverty. With means we can again offer free scholarships, and with free scholarships our college will be filled.

"As a means, then, for meeting our great want, and removing the only remaining obstacle in the pathway of the State Agricultural College, I present the following resolution: —

"*Whereas* The opportunity afforded for free tuition three years since fully demonstrated that the Agricultural College was appreciated by a large proportion of our farming population by the increased numbers who sought and secured membership; and

"*Whereas* The increasing necessities of our civilization demand free scholarships of all our young men who are ambitious to secure practical education, and whose circumstances do not favor the expenses of tuition; and

"*Whereas* The only remaining obstacle in the development and prosperity of the Agricultural College is found in the small means at its disposal, thereby preventing the trustees from continuing the liberal policy of free scholarships so successfully inaugurated three years since: therefore

"*Resolved*, That a committee be appointed to consider the perfect means for the establishment of a large permanent fund for the College, in addition to its present endowment, that its usefulness shall be made commensurate with the designs of its originators, and its scholarships brought within the reach of all the youth of the Commonwealth."

The resolutions were unanimously adopted, after full and free discussion. The following gentlemen were appointed as a committee to consider the entire subject, and to submit a plan at a subsequent meeting of the college trustees: Hon. Daniel Needham of Groton, Hon. William Knowlton of Upton, Hon. George Taylor of Chicopee, Lieut.-Gov. Weston of Dalton, and Hon. C. L. Flint of Boston. By the suggestion of Gov. Long, the following resolution was passed, and the convention adjourned: —

Resolved, "That the State Board of Agriculture be requested to require all agricultural societies in this State receiving bounties to support, at an expense not less than seventy-five dollars, one student residing within its limits at the Massachusetts Agricultural College, and that, in case no student is so supported, such amount shall be withheld in the payment of the agricultural bounty to said society, and applied to the general uses of the college."

The committee attended to their assigned duties; and at the annual meeting, by their chairman, Hon. Daniel Needham, reported the following plan: —

> "That a fund of one hundred thousand dollars be raised by subscriptions of one thousand dollars each, payable in ten instalments of one hundred dollars a year, with interest at four per centum on all unpaid balances, until the entire sum is paid; and that, whenever said one hundred thousand dollars shall be paid, it shall be handed over by the committee to the treasurer of the college as a permanent fund, the income of which shall be used under the direction of the Board of Trustees.
>
> "That the conditions upon which this fund shall be bound shall be as follows: 1st, The present system of electing trustees for filling vacancies shall not be changed; 2d, That the committee shall be perpetuated by the filling of vacancies by the Board of Trustees during the period of ten years during the time which the subscription shall be open."

The report was accepted, and laid on the table; and it was voted that the plan should be considered in detail, and measures perfected at an adjourned meeting for its execution.

The trustees of the college, though a legal "body corporate," are simply the agents of the State, with duties and powers clearly defined by law. In the statute of Congress, the great aims and purposes for which the college endowment was provided, and the obligations assumed by the State in accepting it, are fully set forth; and in the statute of the State the details of administration by which it is proposed to realize those aims are defined, even to the course of study to be pursued, and the proportion of time to be given to each. The responsibility of the trustees is confined to an economical expenditure of the funds committed to them for purposes expressly defined, and a faithful adherence to the established system. If this is incapable of producing the designed result, or if the income from funds is inadequate to sustain and develop the system, the responsibility must belong to the State. The experience of fourteen years has demonstrated that the plan of organization is no more extensive, its grade is no higher, than was contemplated by the donors of the endowment, or than is essential to the attainment of the ends sought. Therefore as it exists, in all these respects, it should be supported and maintained.

Respectfully submitted by order of the trustees.

LEVI STOCKBRIDGE, *President.*

AGRICULTURAL COLLEGE, AMHERST,
Jan. 27, 1882.

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